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Changing institutional landscapes for implementing wind power

*A geographical comparison of institutional
capacity building: The Netherlands, England
and North Rhine-Westphalia*

Sylvia Breukers



UNIVERSITEIT VAN AMSTERDAM

Changing institutional landscapes for implementing wind power

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Changing institutional landscapes for implementing wind power

*A geographical comparison of institutional capacity
building: The Netherlands, England and North Rhine-
Westphalia*

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Promotiecommissie:

Promotor: prof.dr A.J. Dietz

Co-promotor: dr. M.P. Wolsink

Overige leden: prof. dr. J. Grin
prof. dr.G.C.A. Junne
prof. dr. L.A. de Klerk
prof. dr.ir. A.P.J. Mol
dr.ir. G.P.J. Verbong

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Amsterdam, October 2006

For my parents

1 Wind power in perspective: background and literature review

1.1 Introduction and background on renewables

1.1.1 Renewable energy sources

Renewable energy technologies are based on resources that are not exhaustible, like solar radiation, wind, river flows, biomass, the tides, waves, or the heat of the earth's core (geothermal). Technically, renewable energy resources (renewables) provide an enormous potential for energy generation. Moreover, they offer the possibility to address environmental problems that are associated with non-renewable energy generation, supply and use. The burning of fossil fuels to generate energy for heating, transport and electricity generation is the main anthropogenic source of carbon dioxide (CO₂) emissions and the electricity sector is responsible for over a third of energy-related CO₂ emissions. Over the past decades, technical improvements in conversion technology have reduced these emissions per unit of produced energy. However, overall energy use has increased. The use of fossil fuels accounts for more than 80 % of the total primary energy supply in most industrialised countries (Jacobsson and Johnson, 2000).

A transition towards a more sustainable energy system would involve energy efficiency and saving, cleaner conversion techniques for fossil fuels, the use of non-carbon energy carriers, and the development of renewable energy technologies. Wind power is part of the portfolio of renewables that can contribute to this transition.

Wind power generation has some advantages over the use of fossil and nuclear energy sources. It does not depend on exhaustible resources, it contributes very little to climate change, it involves no oil spills, radioactive waste, nuclear risks, its environmental impacts are not of the kind associated with lignite mining or large hydropower, and the decommissioning of a wind turbine is relatively unproblematic compared to the decommissioning of a large power plant. Whereas oil, gas and uranium are subject to geo-political vulnerabilities, wind power, in combination with other renewables, can contribute to decreasing the dependence on energy imports and diversify the domestic energy supply basis (Pasqualetti, 2001).

Comparing the costs of wind power with those of conventional power (e.g. from gas or coal) is difficult. Even so, the difference between the cost of wind-generated electricity and that of electricity produced from a modern coal power station appears to be very small, or even non-existent according to some. At any rate, the cost of wind-generated electricity has decreased by 50 % over the past fifteen years, and this downward trend is continuing (WSH, 2006).

Conventional energy has traditionally been geared towards centralised, large-scale generation and supply, involving a limited number of power stations connected to the national grid. This has caused an increasing spatial and psychological distance between energy generation and use: “Because conventional networks of power are confusingly complex and - more important - scattered, the environmental costs of energy gradually had receded from the public’s mind” (Pasqualetti, 2000:384). In contrast, wind power is resource-dependent, location-dependent and decentralised, which causes a “spatial intensification of the impacts of its development” (Pasqualetti, 2000:382). More sites are needed and more people will be confronted with the source of electricity, an effect that is enhanced by the visibility of wind turbines. Apart from their positive contributions, wind turbines bear impacts that have been judged negatively and wind power development is far from uncontested.

Contributions of wind-generated electricity

Since 1999, installed capacity levels of wind power worldwide have been growing at an average cumulative rate of 28 %. By the end of 2004, installed capacity worldwide had reached a level of almost 48,000 MW (table 1.1). Europe counted for 72 % of this total installed capacity.

Table 1.1 Total installed capacity of wind power (end 2004)

Region	Total installed capacity (MW)
Europe	34,647
North America	7,169
Asia	4,785
Pacific	561
Latin America & Caribbean	207
Africa & Middle East	252
World total	47,621

Source: GWEC, 2006:12

Other regions are emerging as markets for wind power developments as well. For instance, India and China both ranked in the top ten of countries with highest levels of installed capacity in 2004 (table 1.2) (Greenpeace, 2005). Table 1.3 places the generation of renewable

electricity in perspective, showing the percentage of electricity generated by renewables and wind power in the Netherlands, Germany and the United Kingdom (UK) in 2003.

Table 1.2 Added and existing installed capacity levels in top 10 countries (2004)

Country	Added in 2004 (MW)	Existing in 2004 (MW)
Germany	2,050	16,600
Spain	2,070	8,300
United States	390	6,700
Denmark	10	3,100
India	880	3,000
Italy	360	1,300
Netherlands	200	1,100
Japan	230	990
United Kingdom	250	890
China	200	770

Source: REN21, 2005:48

Table 1.3 Electricity generation by fuel (%) in 2003 and targets for renewables

	Netherlands ^b	UK ^b	Germany
Gas	58.8	37.5	9.8
Oil	3	1.8	0.8
Coal	28.4	35.4	52.9
Nuclear	4.2	22.4	27.8
RES^a total	5.7	2.8	8.7
<i>Breakdown RES</i>	- <i>Wind: 1.4</i>	- <i>Wind: 0.3</i>	- <i>Wind: 3.2</i>
	- <i>Hydro: 0.1</i>	- <i>Hydro: 0.8</i>	- <i>Hydro: 3.2</i>
	- <i>Biomass and RES wastes: 2.6</i>	- <i>Biomass and RES wastes: 1.6</i>	- <i>Biomass and RES wastes: 1.1</i>
	- <i>Non-RES wastes: 1.4</i>	- <i>Non-RES wastes: 0.1</i>	- <i>Non-RES wastes: 1.1</i>
	- <i>Solar: -</i>	- <i>Solar: -</i>	- <i>Solar: 0.1</i>
	- <i>Other sources: 0.2</i>	- <i>Other sources: -</i>	- <i>Other sources: -</i>
RES Targets	9 % of electricity output by 2010	10 % of electricity output by 2010	12,5 % of electricity output by 2010

Source: IEA, 2005

^a RES: renewable energy sources

^b The percentages of the Netherlands and the UK together do not make up for a total of 100 %, which is probably related to how these numbers have been rounded off

International comparison of socio-political conditions

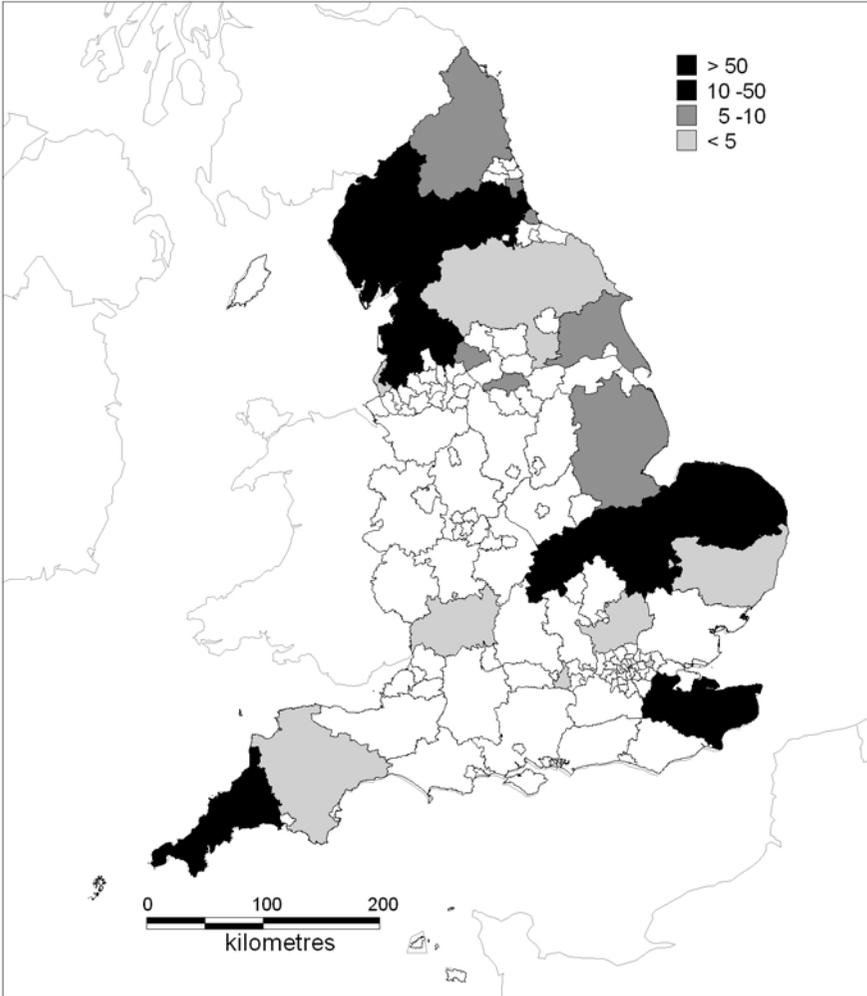
Estimations of the potential for wind power development start with an assessment of wind resources: the *meteorological potential*. Next, an assessment of sites with high wind speeds gives the *site potential*. The wind power potential is further determined by technical conditions, such as available turbines, grid connection, etc. A cost-benefit analysis for available sites based on the yield of energy, technical feasibility, energy prices for competing sources and implementation costs, leads to an *economic potential*. However, calculated economic potentials are no indication of the capacity that will be realised, for that depends on the motivation to invest in the technology as well as on social acceptance of wind projects. It is this *socio-political potential* that we concentrate on when investigating the geographical differences in implementation rates (Wolsink, 1996).

Our study compares three different geographical units over a period of some three decades (1973 to 2004, the emphasis being on the period from 1990-2004). The three cases are the Netherlands, England and the German state of North Rhine-Westphalia.

In chapter 3 we elaborate on the selection of these cases. The differences in implementation rates of our three geographical cases (maps 1.1 to 1.3) indicate the existence of impediments to wind power implementation. A central question in our research concerns how we can understand the differences in implementation achievements in these three different geographical contexts.

We address wind power *onshore*. Offshore wind power developments have started much later than onshore developments and are a different story altogether since wind power offshore has met with very different challenges in its development and implementation.

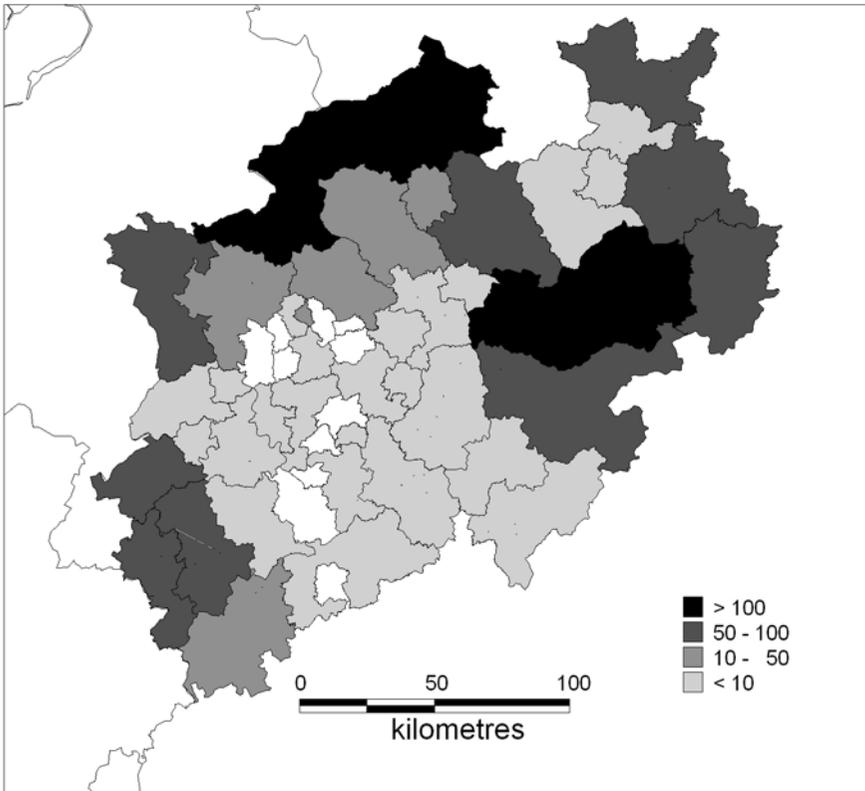
Map 1.2 Installed capacity in England (MW), end 2004 ^a



Thanks to the British Wind Energy Association for providing the necessary data

^a Total installed capacity end 2004: 184 MW

Map 1.3 Installed capacity in North Rhine-Westphalia (MW), end 2004^a



Thanks to the Deutsches Windenergie Institut for providing the necessary data

^a Total installed capacity end 2004: 2,053

This chapter presents an introduction and a review of relevant literature. First, we briefly present the broader historical and European context. Next, studies on effects of different types of policy support systems on wind power development are discussed. Then, we address several *technological innovation systems* studies and approaches and assess how these can inform our research. *Ecological modernisation* approaches are discussed to focus attention on the political-institutional processes involved in transitions. Since wind power development can be regarded an example of ecological modernisation, it is interesting to see how these approaches can contribute to our inquiry. Following on that, studies on spatial planning and local level project planning and decision-making processes for wind power implementation are discussed, in order to arrive at a better understanding of the conditions that affect project planning, implementation, and local social acceptance. Finally, this chapter

summarises the points of departure and introduces the concept of *institutional capacity building* for wind power implementation.

1.1.2 Rise of environmental concern

In 1972 the Club of Rome commissioned the study *The Limits to Growth*, which concluded that if growth trends in world population, industrialisation, pollution, food production and resource depletion were to continue, the limits to growth on earth would be reached within a hundred years (Meadows *et al*, 1972). One year later, the 1973 oil crisis confronted several European countries with their reliance on oil. It made them realise that a steady supply of fossil energy sources could easily be jeopardised by geo-political upheavals. Governments reconsidered their energy policies, and security of supply became an issue. Policy attention and financial support was mostly directed towards nuclear power options. In the margins, however, the potential of domestic renewables was explored, in response to increasing environmental concerns and to the perceived need to improve self-reliance in energy supply. In these years, energy policy was devised predominantly by a closed circle of politicians, specialised civil servants, technical experts and energy sector representatives (Szarka, 2005). However, environmentally motivated grass roots initiatives emerged as well, particularly in Denmark, Germany and the Netherlands. People attempted to develop alternative models of decentralised and small-scale energy supply at the level of the local community. Such initiatives had a clear ideological undertone and involved criticism of the capitalist system and associated large-scale centralised energy supply.

Climate change and sustainable development on the global agenda

Internationally, the eighties saw growing concerns about human-induced climate change. In 1987, the Brundtland commission of the United Nations Commission on Environment and Development (UNCED) published *Our Common Future*, drawing attention to the need for development without limiting the ability of future generations to meet their needs (WCED, 1987). It called for alternatives to the unbridled exploitation of natural resources and environmental degradation. A central concept in the report was that of *sustainable development*. The overall message was less pessimistic than *The Limits to Growth* report, as sustainable development presented a positive-sum picture. It envisages a world in which economic growth, environmental protection, distributive justice and long-term sustainability are safeguarded and mutually reinforcing (Dryzek, 2005). To reach sustainable development,

technological, social and institutional changes would be needed. The concern about climate change also generated attention for renewables. In 1992, the UNCED Conference in Rio de Janeiro presented *Agenda 21*, a follow-up on the Brundtland report. It stressed the need to involve people at the level of their communities in order to deal with global environmental challenges. The Rio Conference resulted in the United Nations Framework Convention on Climate Change, a treaty that aims at reducing greenhouse gas emissions. This treaty was the predecessor of the Kyoto protocol. Several meetings in Kyoto (1997), Bonn (1999), and The Hague (2000) showed how difficult it was to make internationally binding agreements on emissions reduction. Although 163 countries have by now have ratified this agreement, the United States (US) and Australia have refused to do so, fearing that it puts domestic economic growth at risk.

A policy approach that is based on the notion of sustainable development should involve an integration of economic, environmental and social concerns. However, policies for renewables have overall involved a rather narrow interpretation, the emphasis being on increasing installed capacity levels (Szarka, 2006).

EU: energy and environment

Since the eighties, the interference of the European Union (EU) with the policies of member states has increased in the field of energy, renewable energy, and environmental policy.

In 1996, an EU directive was adopted that urged member states to liberalise their electricity markets in stages, starting in 1999. The directive called for a separation of energy production, transmission and distribution activities. An internal energy market should facilitate cross-border trade, establish a level-playing field, promote overall competitiveness of EU electricity and gas markets, and result in lower consumer prices. The process of liberalisation brought about profound changes in the energy sector. The traditional stronghold of government, energy utilities and experts was no longer viable and new niches provided new actors with opportunities. Liberalisation furthermore resulted in cross-border mergers and takeovers in energy industries and concentrated market power in the hands of a few former state utilities. A White Paper on Energy Policy in 1996 elaborated the principles underlying EU energy policy, with central objectives involving the enhancement of the EU's economic competitiveness, security of energy supply, and environmental protection (Jansen and Uyterlinde, 2004).

In line with growing international environmental concerns, the EU addressed climate change issues. The EU committed itself to

reducing greenhouse gas emissions by 8 % below the 1990 level in the period from 2008 to 2012. Expansion of renewables was regarded as an important part of the set of measures needed to meet the Kyoto Protocol. In 1997, the European Commission published a White Paper on Renewable Energy, followed in 2001 by the EU Directive on the Promotion of Electricity produced from Renewable Energy Sources. The directive aims to increase the EU's share of electricity produced from renewables from 15 % in 2001 to 21 %, and to reach a 12 % energy consumption from renewables by 2010. Member states are required to indicate national targets in accordance with the commitments made under the Kyoto Protocol, to report on their achievements and on the instruments adopted to attain these targets. They furthermore have to ensure that the grid operators provide access for renewable electricity to the grid. Although the targets are not binding, they can be made mandatory later on, if deemed necessary (*Directive 2001/77/EG*).

After the seventies, when the spectre of future scarcity had loomed large in *The Limits to Growth* report, oil, gas and coal reserves have increased. However, energy consumption has also increased globally. Worries about security of supply and scarcity of fossil fuels have re-emerged. Concerns are nowadays related to the rising energy consumption in China and India and to Europe's dependence on imports of oil and gas. Rising demand side pressures may result in price-increases, and political tensions or instability in other parts of the world may cause interruptions in supply. In 2001, when the EU Directive on renewable energy was adopted, oil and gas prices were still at a relatively low level. The recent rise in fossil energy prices may work out beneficial for the development of wind power (and other renewables), since it decreases the price difference between the two.

Another area of EU intervention concerns nature protection legislation. The EU Birds Directive (1979) and the Habitats Directive (1992) provide a legal framework and members are obliged to take measures in order to protect bird-, other animal- and plant species and their habitats. This involves the designation and management of Special Protection Areas for certain species - Natura 2000 sites. EU member states have translated the directives into their national nature protection legislation, and developers of wind farms must comply with this legislation.

1.2 Diffusion of renewables: studies and approaches

A growing number of studies place the advance of renewables (e.g. in terms of industry, market, technology) in general and wind power in particular in the context of national political, social, economic, technological and institutional developments, aiming at a better understanding of the complexity of contextual factors that have affected such developments in several countries (Agterbosch, 2006; Bergek and Jacobson, 2003; Dinica, 2003; Hofman, 2005; Lauber and Mez, 2004; Strachan and Lal, 2004; Suck, 2002; Van Est, 1999).

1.2.1 Policy support for renewables: studies and discussions

Several measures can encourage the development and use of renewables. Voluntary measures include education, awareness building and information dissemination. Support for voluntary action can involve grants, low-interest loans for investment in renewables, or financial incentives to encourage consumers to opt for electricity generated with renewables. In addition, regulation is needed to encourage renewables development. This can take the form of various tax incentives: exemption from energy taxes, tax refunds and/or lower VAT (value-added tax) rates for renewable electricity, and exemptions from corporate taxes for investments in renewable energy plants (Van der Linden *et al*, 2005). Regulation with regard to emission reduction standards, grid access and permitting procedures also affect the integration and implementation of renewables.

In terms of direct financial support, several measures can be distinguished. Financial support for Research, Development and Demonstration (R, D&D) has been widespread and started for wind power in the seventies. This support is important in the early phases of technology development. Furthermore, investment subsidies have been granted for investments in wind projects in several countries. The disadvantage of this type of subsidy is that it provides no incentive to operate the wind project as efficiently as possible. Financial support that is 'returns-dependent' has proven more effective in encouraging functional and economic wind projects. It provides an incentive for developers to lower the production cost per kilowatt-hour (kWh) (Hemmelskamp, 1998).

Financial support mechanisms for regulating prices or quantities form the backbone of renewables support, including wind power. Three types of systems have been prominent: the feed-in tariff system, the

quota obligation system and the tendering system (Espey, 2001; Sawin, 2004). In recent years studies and debates have focused on two of these support systems: the quota obligation system and the feed-in tariff system (Haas *et al*, 2004; Hvelplund, 2001; Lauber, 2004; Mitchell *et al*, 2006; Reiche and Bechberger, 2004; Sawin, 2004; Toke, 2005b; Van der Linden *et al*, 2005). The basic difference between the two, as Hvelplund puts it (2001), is that the feed-in tariff system involves a politically determined price for electricity generated with renewables, while the market determines the quantities. In the quota system, on the contrary, the quantity is defined politically while the price paid for renewable electricity is decided on in the market place. Below, we address the different types of support systems and the discussion about the merits and drawbacks as identified by several authors.

Feed-in tariff system

A feed-in tariff system requires grid-managing companies - in practice mostly utilities or distribution companies - to provide renewable electricity producers access to the electric grid and to purchase their electricity at fixed minimum prices. The total price received by the producer is usually higher than the market price for electricity and the payments are guaranteed for a specified period of time (Sawin, 2004). Early examples of countries using this system are Denmark (until 2000), Germany and Spain. Recently, countries like France, Austria, the Netherlands, Portugal and Greece have adopted a feed-in tariff system as well.

If the tariffs are high enough, they cover the costs and encourage investments. The guaranteed payment for a set period assures the investors of a calculable and reasonable rate of return. The feed-in tariff encourages developers to achieve a high yield.

This system offers the possibility to differentiate for different renewable technologies, e.g. wind power, photovoltaic and biomass. In addition, it can differentiate with regard to the available resources, e.g. by offering different tariffs according to the wind regime on a location. Furthermore, a stepped tariff over time is possible, when payments guaranteed to projects decline annually, and when the height of payments is adjusted every few years for new projects. The extra-price that producers of renewable electricity receive (on top of the market price for electricity) can be covered through an additional charge per kWh for end consumers (Spain, Germany), by taxpayers or a combination of both (Denmark until 2000).

Quota obligation system

In a quota obligation system or renewables portfolio system, the government defines a share of electricity that must be produced from renewables, and this share usually gradually increases over time, towards a final target and an end-date (Sawin, 2004). The requirement to purchase or deliver a minimum amount of renewable electricity can be set for producers, distributors or consumers. The quota system is relatively new compared to the feed-in system. It was first introduced in the late nineties in some states of the United States. In Europe, the United Kingdom (UK) was the first to introduce a quota obligation system in 2002, followed by Belgium, Sweden, Italy and Poland (Van der Linden *et al*, 2005).

The quota system involves tradable renewable energy certificates. These certificates serve as proof of produced renewable electricity, and those who fall under the obligation must deliver the certificates at specified points in time. Non-compliance means that a fine has to be paid instead. The certificates can be acquired by operating a renewable energy plant, by purchasing electricity produced with renewable energy sources, or by purchasing certificates. Hence, this system involves a market in certificates next to the market in electricity. The control of the certificate trade is organised by government, for instance through a central registration body.

Tendering system

A tendering system involves a government-administered competitive bidding process in which producers of renewable electricity compete for purchase agreements or a government-administered fund. The government determines an amount of electricity to be generated by renewables. Following on that, project developers can bid for contracts. The proposals with the lowest bids are awarded, until the targeted level is reached (Sawin, 2004). The winners of contracts are guaranteed the purchase of their renewable electricity for a specified period of time. Utilities are required to purchase the electricity at the price proposed by the winning bids. The extra-price on top of the market price for this renewable electricity can be paid for by a levy on electricity consumption. Before 2001, the UK had a tendering system. Ireland, France, and several states in the United States have also had such systems. This system is very competitive, it encourages cost-efficiency and price reduction, but it has not been successful in triggering growth in installed capacity levels (Van der Linden *et al*, 2005). Therefore, discussions on the merits and drawbacks of financial support systems will mainly centre on the quota obligation system and the feed-in tariff system.

Pros and Cons

Table 1.4 shows several of the arguments brought up in discussions on financial support systems for renewables. The arguments in favour or against are not always supported by empirical evidence. With regard to the quota obligation system in particular, they are in part theoretical, because of the limited experience so far.

To date, countries with a feed-in tariff system have achieved highest installed capacity levels of wind power. From 1991 to 2001, Denmark, Spain and Germany accounted for 59 % of total additions in installed capacity (Sawin, 2004). In 2000, these three countries together were responsible for 90 % of wind power production in Europe (Hvelplund, 2001:18). Feed-in tariff systems have provided a consistent and predictable investment climate, encouraging a variety of actors to invest. In Denmark, these have included cooperatives and local residents, which has helped to create acceptance of wind power (Hvelplund, 2001; Lauber, 2004; Sawin, 2004). In addition, these countries have been successful in creating a home market in turbine and equipment manufacturing. Wind power has high fixed investments costs and relatively low running costs (Hvelplund, 2001). In operation and maintenance, no major cost-reductions are to be obtained. Hence, technological learning and improvement that result in a decreasing cost of turbines and equipment are crucial to lower the cost of wind power. Since 1980, this decrease has amounted to 80 %. The feed-in tariff system encouraged production of wind-generated electricity, which increased demand for turbines and related services. This triggered technology development, competition and economies of scale. Employment has been created through the emergence of a new industrial sector. Hvelplund (2001) argues that a feed-in tariff system is more likely to enhance competition in the turbine manufacturing and equipment market than a quota-system. This is because in the latter system, manufacturers have a limited market to supply and may decide to realise profits by raising (or not lowering) the price of their turbines. However, a comparison on how the two systems stimulate the development of the turbine manufacturing market remains theoretical. Germany, Denmark and Spain controlled the world market for turbine manufacturing before any European country had introduced a quota system.

Table 1.4 Arguments in favour and against the two support systems

Feed-in tariffs: arguments in favour
<ul style="list-style-type: none"> - To date most successful at developing RES^a markets and domestic industries - Favourable to boosting yield - Flexibility: option to differentiate according to technology, geographical and technological conditions, changing market conditions and over time. - Favourable to innovation by targeting technologies - Guaranteed price provides investment security, encouraging a diversity of actors to enter the market - Opening up of the market to parties that do not own the grid - Low transaction costs - Ease of financing
Feed-in tariffs: arguments against/risks
<ul style="list-style-type: none"> - Setting the price too high - consumers pay high prices while investors enjoy excessive profits - Losing control over market growth - National level: political risk, if government changes the rules of the game, the whole sector is put at risk - Inefficient division of labour, when encouraging exploitation in areas with poor resources (e.g. turbines on inland sites)
Quota-system: arguments in favour
<ul style="list-style-type: none"> - Promotes price-competition as no minimum price is set - Promotes cost-efficiency - exploitation of the cheapest resources first - Favours scheduled, predictable growth and certainty regarding future market share for renewables - Can be either 'technology neutral' or differentiate among technologies - Efficient market competition organised via tradable certificates (national and potentially international) - Compatible with conventional power markets and electricity supply infrastructure
Quota-system: arguments against/risks
<ul style="list-style-type: none"> - Fluctuating certificate values in 'thin' markets, creating instability and insecurity. - High transaction costs and bureaucratic complexities create uncertainties and barriers - Competition pressure can result in exploiting windiest sites, while disregarding environmental and social impacts. - Tends to favour large investors over small investors. - Targets can set upper limits for development: no incentives to install more than mandated level - Lack of flexibility - difficult to adjust in short-term if situation changes. - High risks and low rewards for equipment industry and project developers, which slows innovation

Sources: Espey, 2001; Hvelplund, 2001; Lauber, 2004; Sawin, 2004; Szarka, 2006.

^a RES: renewable energy sources

Quota systems are designed to encourage competition among producers of renewable energy. If competition is high, developers may be pushed to develop projects only in areas with the best wind resources, which

often are ecologically sensitive areas (Pasqualetti, 2000). In a feed-in tariff system, wind power generators do not have to negotiate a price with suppliers, since the latter are required to purchase their electricity against a fixed minimum price. In a quota system, a wind generator has to negotiate contracts for selling wind-generated electricity to suppliers. Longer-term security for developers depends in part on the availability of long-term contracts. For smaller investors it can be hard to survive on this market, and the system may favour large investors. However, when the market is heavily undersupplied with certificates, a quota system can still benefit smaller initiatives (Toke, 2005b).

It has been argued that the price-competition inherent to the quota system is more likely to result in cost reductions (price/kWh) and that feed-in tariffs provide few incentives to reduce costs. In addition, it has been argued that the quota obligation system leads to efficient market competition through the trade in certificates, which can eventually become an international market. However, the UK quota system has so far not resulted in lower prices for wind-generated electricity compared to Germany (Mitchell *et al*, 2006). Price-competition is only to a limited extent useful to lower the prices, since cost-reductions are mainly to be gained through the availability of cheaper turbines. In addition, certificates in different countries (and even within countries) are not exchangeable, which hampers international trade in certificates. The feed-in tariff system does not involve price-competition. However, unlike a quota system it provides for a situation in which the grid monopoly cannot be used to dominate or impede the market. The feed-in tariff system seems more conducive to creating a level playing field. It encourages a diversity of parties to invest in and develop wind projects, who all aim at increasing yield in order to increase their returns. This is more relevant for reaching efficient cost-allocation and increasing installed capacity levels than a system in which price competition stands central.

While the quota system creates some certainty regarding the future development of the market, this can also hamper the market, when the politically determined share of renewable electricity is attained earlier than expected. Countries with feed-in tariffs have more than once witnessed a speed of development that surpassed government targets (Sawin, 2004).

Feed-in tariffs can be adjusted, in response to the perception that the price has become too generous, for instance in relation to dropping prices of turbines and equipment. This mechanism is important to make sure that cost reductions benefit the end-consumers - who often pay for the extra-price of the feed-in tariff. The feed-in tariff system can

furthermore differentiate according to location. A wind turbine on an inland location in Germany may generate only 50 % of the quantity of electricity generated by a similar turbine located near the coast. Hence, a site-differentiated support system that takes account of variable efficiencies according to location can prevent projects from being over- or under subsidised (Hvelplund, 2001). Against this, proponents of a quota system could argue that encouraging wind projects in locations with limited wind resources is not efficient and should not be aimed at. Moreover, in principle the quota system could also differentiate on technology, and different quotas could be set for different regions (Sawin, 2004; Van der Linden *et al*, 2005).

EU discussion on political prices or quantities

Within a given political and institutional setting, some types of policy support are more likely to be adopted than others. The discussion on wind power involves an ideological component. Countries with an outspoken neo-liberal ideology like the UK and the US considered quota obligation systems more market-compatible. In Denmark, and Germany, the neo-liberal rationale has been less dominant and there a feed-in tariff has been in place (Lauber, 2004; Toke, 2005b). At the European level, a discussion has been going on since 1996 about what type of support system works best to promote the expansion of renewables within Europe. The European Commission aimed at convergence between the support systems for renewables in its member states. At first, it favoured the quota system over feed-in tariffs. It even urged several member states to replace their feed-in tariff system with a quota system. However, the European Parliament and the Council did not share the Commission's preference for quota systems. In a court case on the issue whether the feed-in tariff system involves state aid or not, the European Court decided in 2001 that it did not (see chapter 6). The Court verdict strengthened the case for the proponents of the feed-in tariff system. This, and the fact that in the years following 2001, the quota systems did not meet expectations in terms of cost-efficiency, prompted the Commission to abandon its strong preference for a quota system (Lauber, 2005).

1.2.2 Innovation systems approaches: diffusion of wind power technology

Jacobsson and Johnson (2000) devised an analytical framework to study the diffusion of wind power technology, focusing on actors, networks and institutions. This innovation systems approach emphasises that the

formation of a new technological system is based on how competences in a new technological field develop, which involves the shaping or reshaping of networks and institutions that are supportive of the new technology. A multitude of forces may favour the incumbent system, which necessitates the adoption of strong inducement mechanisms in order to start a process of cumulative causation that will favour the new technology. Market failures, as well as network and institutional failures are adduced to explain the unsuccessful development of a new technological system. The challenge is how to gradually change the institutional setting in order to align it to the needs of renewable energy technologies.

Inquiring into the interplay between actors, networks and institutions, the authors distinguish two phases in the diffusion process of wind power technology (Bergek and Jacobsson, 2003; Johnson, 2001). The first phase is one of experimentation, in which several competing alternatives are apparent. Diversity is important for experimentation and learning. The outcomes are still highly uncertain in terms of the winning technological alternatives. In this phase the market is still small. This process is characterised by a path-dependent development of actors and associated supporting institutions and networks. In the second phase of the diffusion process, there are fewer new entrants and firms drop out or are taken over. In this phase, the market expands. The 'functionality' of an innovation system is assessed by inquiring how it supports firm entry, variety and the formation of niche markets in the first phase, and market expansion and the supply of resources to exploit that market in the second phase.

Having compared the evolution of the wind turbine manufacturing industries in Germany, the Netherlands and Sweden, Bergek and Jacobsson (2003) identified four factors to explain the relative success of Germany. First, diversity in technology development characterised the early phase of technological development. Second, the political legitimacy of wind power technology was safeguarded at the national level, which encouraged actors to become involved. Third, policies during the second phase encouraged wind power implementation, which resulted in an expanding home market for wind turbines. Finally, industrial policy favoured domestic wind turbine manufacturers over foreign ones. Bergek and Jacobsson concluded that policies need to foster legitimacy of a new technology and create an attractive, predictable and persistent system of incentives. Since different needs are in place in the two phases, different support systems may be suited for particular stages of development. The feed-in tariff system contributed to the early stages of market creation and technological

innovation and development in Germany (Lauber, 2004). In a study on the diffusion of renewable energy technologies in the UK, Foxon *et al* (2005) concluded that insufficient government support in the first phase had impeded learning, cost reduction and had hence negatively affected technology diffusion.

Hofman (2005) analysed several renewable energy technological paths that have been initiated in the Netherlands over the past decades. He found that those options that converged best with existing institutional arrangements were most successful, because they did not present a fundamental challenge to the incumbent energy system. An important conclusion was that a successful diffusion of renewable technologies needs to be accompanied and carried by processes of institutional change in the four structures in which socio-technical systems are embedded: the knowledge -, the political -, the economic - and the societal structure (Hofman, 2005).

A study by Van Est (1999) inquired into technological innovation and diffusion, by treating political innovation and techno-economic development as mutually dependent and continually shaping each other. He compared Danish and Californian histories of techno-economic innovation in wind turbine manufacturing, focusing on the democratic quality of innovation processes. Van Est examined the evolving of innovation networks, which consist of scientific, technical, producer and consumer poles that are interdependent. His empirical study showed that cooperative forms of policy learning across ideological coalitions contribute to the democratic quality of policy (in other words, to a democratic legitimisation process around innovation). Whereas competitive forms of learning remain confined within the boundaries of ideological coalitions, cooperative forms involve learning across ideological coalitions. Using this approach he elaborated how the small Danish manufacturers eventually overtook the large-scale turbine industry of California. The Danish success was partly related to the fact that there was room for diversity and for cooperative learning - more so than in the Californian situation, where the choice for a single option (large turbines) eventuated in a failed industry. Van Est concluded that innovation policies must encourage the proliferation of a politically diverse (set of) innovation network(s), in order to prompt learning processes, within and across innovation networks. Both Hofman and Van Est pay more attention than Bergek, Jacobsson and Johnson do to the manner in which political legitimacy and social acceptance of renewable technologies come about.

Socio-technical innovation systems approaches explicitly focus on the interdependence between technology and society. Geels' (2004) socio-

technical innovation systems approach starts from the notion that technological processes cannot be separated from the social context. He combines insights from both sociology and institutional theories, to “indicate how economic activities and processes may influence and transform the sociological structures in which they are embedded”(Geels, 2004:903). Geels emphasises that technologies are not neutral artefacts, as they influence our perceptions, behavioural patterns and activities. We have already noticed that wind turbines confront people with a technology that may not fit in with their established perceptions of electricity supply (Pasqualetti, 2001). Next, technologies have certain ‘hard qualities’ that relate to their material nature and economic aspects. For instance, the electricity infrastructure that supports centralised large-scale generation and supply is not attuned to decentralised renewable energy generation and supply. The material infrastructure is furthermore accompanied by and reflected in the rules and patterns of behaviour that are embedded in the energy supply system. Institutions that favour and support the established electricity system (e.g. legislation) can work out negatively for the diffusion of renewable technologies. Moreover, the network of conventional energy companies may oppose renewable energy technology development, if they expect that it will negatively affect their interests. Hence, the diffusion of a new technology like wind power has to contend with sometimes deep-rooted existing perceptions, values and habits. It constitutes a challenge to the material infrastructure, and to the rules that govern behaviour in the incumbent energy system. These notions are not only relevant when studying diffusion of wind power technology and the development of a turbine manufacturing industry. They also form an important point of departure for our study on the implementation of wind power.

A systemic approach that addresses wind power *implementation* has been adopted by Agterbosch (2006), who inquired into the development of the wind power supply market in the Netherlands. She investigated the interdependent formal institutional and social conditions to explain investment behaviour of the different types of wind power entrepreneurs (cooperatives, energy distributors, small private investors and new independent wind power producers) and their performance in implementing wind power. Her conclusions pointed out the importance of the development of social and institutional capital to reach successful implementation (Agterbosch, 2006).

The challenges relating to wind power implementation are bound up with political processes. Wind power developments can be understood as part of an attempt to institutionalise environmental

considerations and integrate them into prevailing processes and systems. *Ecological modernisation* addresses such political processes of ecological restructuring. We will briefly discuss part of this literature, as it draws attention to the broader political-institutional context in which we want to place wind power implementation.

1.2.3 Ecological modernisation: theory, discourse, and policy

Ecological modernisation (EM) theory is the result of many efforts at understanding how modern industrialised societies deal with environmental crises. It started out as an attempt to formulate options to address environmental problems without leaving the path of modernisation (Mol and Spaargaren, 2000). First developed and applied in the eighties in Germany, the Netherlands and the UK, it has developed into an approach that is increasingly widely adopted to study society-environment interactions (Mol and Sonnenfeld, 2000).

Like the technological systems of innovation approach in its early days, ecological modernisation theory started out with an explicit emphasis on the role of technological innovation to accomplish environmental reforms. In addition, it addressed the unsuitability of command-and-control policies and argued instead for a larger role for market actors and market dynamics in environmental reforms. The idea was that technological modernisation and new managerial structures for dealing with environmental issues would result in a win-win situation for both environment and economy. The early EM perspective soon faced criticism for its technocratic tendency and its neglect of the role of civil society and political institutions (Gibbs, 2000; Van den Burg, 2006).

In the nineties, ecological modernisation theory responded to this criticism. Emphasis was placed on the need for changes in cultural, political and economic institutions, in order to integrate environmental considerations into existing patterns of production and consumption (Spaargaren en Mol, 1992). EM is nowadays increasingly concerned with changes in political processes, addressing changing roles of and relationships between government, civil society, markets and economic actors. These transformations have been grouped into five categories (Mol and Sonnenfeld, 2000:6). First, the role of science and technology is changing. They no longer present dominant sources of uncontested knowledge, in view of the growing uncertainty about causes of and solutions to complex environmental problems. Expert knowledge is increasingly being supplemented by other types of knowledge (e.g. lay-knowledge). Second, the role of government has changed as it is no longer in a position to unilaterally impose measures. Instead, government

actors increasingly act as facilitators of transition processes and are involved in negotiated decision-making. Politics is increasingly conducted outside the formal arenas. Non-state actors have adopted administrative, regulatory, managerial, corporate and mediating functions and supranational institutions have grown in importance and affected the traditional role of the state in environmental reform. Third, market actors and mechanisms are becoming ever more important in environmental reform. Fourth, environmental organisations have become increasingly part of the decision processes and institutions. Fifth, changing discursive practices and emerging new ideologies are discernible, signalling a process of institutionalisation of environmental concern - an outright neglect of environmental problems is no longer an accepted position.

Ecological modernisation as discourse

While some regard and employ EM as a theory or analytical framework to inquire into processes of political modernisation, others have emphasised EM as a discourse (Hajer, 1995; Dryzek, 2005). These authors have pointed out the normative value of the theory as a point of departure to elaborate ideas for enhanced democratic decision-making and environmental reform.

Hajer (1995) has identified two different discourses: a technocratist one and a reflexive one. In a similar vein, Christoff (1996) has distinguished between weak (i.e. economic-technological) and strong (institutional-democratic) ecological modernisation (table 1.5).

Table 1.5 Typology of weak and strong ecological modernisation

“Weak” EM	“Strong” EM
Technological solutions to environmental problems	Broad changes to institutional and economic structure of society, incorporating ecological concerns
Technocratic and corporatist styles of policy-making by scientific, economic and political elites	Open, democratic decision-making with participation and involvement
Restricted to developed nations who use ecological modernisation to consolidate their global economic advantages	Concerned with the international dimensions of the environment and development
Unitary: imposes a single, closed-ended framework on political and economic development	Heterogeneous: more open-ended, no single view, but multiple perspectives and possibilities with ecological modernisation

Based on: Christoff (1996) and Dryzek (2005)

Weak EM is based on a technocratic and administrative approach towards ecological reform, characterised by corporatist decision-making structures, and focuses on the restructuring of industry. Dryzek (2005) has argued for the necessity to move beyond the technocratic version, in order to be able to develop the capacity for social learning in an ecological context. Since environmental issues involve uncertainty and complexity, there is a need for institutions and discourses open to learning. Moreover, because ecological problems and issues transcend established governmental jurisdictions, democratic processes need to be reconstituted in order to fit the size and scope of particular issues. Dryzek highlights the importance of networks, through which authority is reconstituted across traditional boundaries of state, economy and society (Dryzek, 2005:176). He emphasises the significance of collective decision-making through authentic democratic discussion, which is open to all interests, and in which political power, money and strategising do not determine outcomes. This approach is reflexive in the sense that decision-making is based on critical self-awareness. The strong or reflexive variant of EM involves institutional change in the direction of democratic experimentation, exploration and social learning.

Ecological modernisation as a policy concept

Ecological modernisation discourse bears some resemblance to the sustainable development discourse. Both argue that environmental improvement is possible within the confines of a capitalist political economy. Both propose that environmental protection and economic growth can go hand in hand. However, while sustainable development has little concrete action points, “(...) Ecological Modernization has a much sharper focus than sustainable development on exactly what needs to be done with the capitalist political economy, especially within the confines of the developed nation-state” (Dryzek, 2005:169). The translation of weak ecological modernisation discourse in policy approaches has succeeded in countries that are widely regarded as having the cleanest and greenest policy record: Germany, the Netherlands, Finland, Norway and Sweden. Dryzek relates the relative success of environmental policies in these countries to their corporatist policy style. Corporatist policy-making has turned out to be more capable of opening up to environmental concerns than adversarial policy-making in countries like the United States, Australia and the UK - where a neo-liberal policy paradigm has been dominant since the late seventies (Dryzek, 2005).

Neo-liberalism calls for liberalisation, deregulation and privatisation of state-owned enterprises and services. It entails a strong

preference for market-conform instruments to regulate the remaining part of the public sector. Politically, it has involved a roll-back of the state. In the eighties and nineties, countries with corporatist traditions like Germany and the Netherlands adopted neo-liberal measures, attempting to curb government intervention, to abolish welfare state arrangements, as well as to promote deregulation and liberalise public utilities - including the energy sector. These states have attempted to find a new balance between cooperation and competition. Where corporatism used to involve tripartite negotiation between the state, labour and employers, neo-corporatism means that different forms of negotiation have arisen, resulting from the recognition of a wider array of 'stakeholders' at several levels of government (Jessop, 2002). In these contexts, where the neo-liberal paradigm did not become predominant, there was more room for environmental interest representation than was the case in neo-liberal countries, where environmental interests have often been regarded as threatening a proper operation of the market.

As a policy strategy, EM took hold in Germany as early as the eighties. It proposed to decouple economic growth from pollution flows, to internalise external costs by placing a monetary value on nature, and to improve ecological and economic efficiency within the confines of the market economy (Weidner, 2005). In practice, it meant support for green industries and technologies, with the aim of creating a new market for environmental technologies (Jänicke and Weidner, 1997). Other examples of ecological modernisation policy involve so-called New Environmental Policy Instruments: market-based instruments (e.g. eco-taxes), voluntary agreements between government and market actors, and eco-labelling (Jordan *et al*, 2003).

Gibbs (2000) argues that the adoption of 'weak' ecological modernisation in policies in cases has amounted to an emphasis on innovation, technological change and competitiveness, while offering a legitimisation for business-as-usual. In line with Dryzek, he argues that more attention should be awarded to the processes of "experimentation, struggle and conflict involved in environmental policy as opposed to its objective promotion as ecological modernisation" (Gibbs, 2000:18). More attention should be directed to *how* institutional change can be brought about, especially at the level of implementation (Gibbs, 2000).

For this reason, apart from looking at wind power developments at the level of national policy-making, we need to relate the broader political-institutional context to actual processes aimed at wind power implementation (realisation of projects). What is decisive for successful implementation is the motivation to invest in the technology, as well as social acceptance of wind projects. Positive decisions about investments

and about building wind projects are taken at the local level of implementation.

1.3 Planning for wind power: the local context

1.3.1 Spatial planning domain

Apart from considering conditions in the domain of energy policy and developments in technology diffusion, and looking at the extent to which environmental concern has resulted in policies that support wind power implementation and market development, we also need to address the domain of spatial planning. Studies on policy support systems and on diffusion of wind power technology often regard permitting procedures (and sometimes the planning system as a whole) merely as market distortions that potentially present barriers. However, the national planning system and planning policy influence local land-use decision-making and this has a significant impact on wind power implementation (Hull, 1995a; Wolsink, 1996). As Owens (1994) has pointed out, the spatial planning system constitutes political processes through which many land-use decisions are taken. At the local level of land-use planning, several interests have to be weighed against each other. The decision to grant or refuse planning permission to a wind project proposal is the outcome of local political decision-making. Relevant questions arise like: How are nature, environmental and landscape protection interests dealt with? How are local social, economic and other interests balanced with the global interest of countering global climate change?

Although each local context has its own particularities, we can inquire into the structural conditions that have constrained or enabled local decision-making and project planning for wind power over time. Most of the national and international comparative studies discussed above have devoted little attention to opposition against wind power, and to how local opposition relates to local decision-making and project planning. These issues are partly bound up with energy policy, as some authors have pointed out that the feed-in tariff system has encouraged citizens to invest in wind power projects locally, which has positively affected local social acceptance (Agterbosch, 2006; Hvelplund, 2001; Lauber, 2004). In the next section, we discuss studies that have explicitly focused on the local level of project implementation, in order to gain a more elaborate understanding of how institutions, policies and practices

in project development affect local decision-making processes and outcomes of wind power implementation.

Studies that address the local level of implementation involve single case studies, comparisons between local cases within a country, or across countries in Western Europe, the United States and Australia (Christensen and Lund, 1998; Devine-Wright, 2005b; Hull, 1995b; Kahn, 2004; Kellet, 2003; McKenzie Hedger, 1995; McLaren-Loring, 2004; Thayer, 1988; Van Erp, 1997; Wolsink, 2000). This literature addresses social, political, economic and psychological dimensions of wind power implementation, as well as issues like perceptions, attitudes and behaviour, public participation in project planning, and ownership, in order to understand the conflicts that increasingly emerge around wind power project development.

1.3.2 Perceptions, attitudes and behaviour

The best sites in terms of wind potential would in theory be those with the highest wind speeds. However, in many cases, such locations are ecologically sensitive areas or cherished landscapes (Kellet, 2003; Pasqualetti, 2000). Wind power developments have met with public resistance, especially when proposed for such landscapes. Pasqualetti's study on the early application of wind power in Palm Springs, California, in the mid-eighties, documented how developers were surprised when they immediately encountered fierce opposition from people living in the vicinity of the projects. Developers had assumed that the public would appreciate the wind turbines as an environmentally friendly, low-tech solution. They attempted to take away concerns by emphasising the merits of wind power in comparison to fossil fuels and nuclear power. In addition, various technical improvements were made. However, a main concern was that the turbines significantly changed the open desert landscape. For this visual impact no 'technological fix' was possible (Pasqualetti, 2001; 2002).

People's attitudes towards wind power in general affect their assessment (supportive or dismissive) of any particular wind project proposal. This general attitude entails considerations related to the perception of wind power as an alternative energy source that reduces the reliance on fossil and nuclear energy sources, curbs air pollution and helps to counter climate change. Several empirical studies have shown that *negative* attitudes are primarily based on the perceived visual impact, especially the impact on the landscape and scenic values (Thayer and Freeman, 1987; Walker, 1995; Wolsink, 1988; 1990). The perception of visual impact is affected by the nature of the location (e.g. hilltop, coast,

in or nearby a protected area), the characteristics of the turbines and how they are sited (size, colour, orientation and layout) (Walker, 1995). Moreover, visual impact has symbolic and referential aspects. Scenic values are highly subjective and relate to local natural conditions and cultural traditions - such as the English tradition of landscape protection (Hammarlund, 2002).

Other reasons for negative evaluation include noise annoyance, shadow flicker, impacts on birds and wildlife, potential impacts on property values, the intermittency and associated unreliability of wind-generated electricity supply, the limited contribution to the total electricity supply, perceived expensiveness, inefficiencies of wind turbines, negative perceptions of developers' motives, and annoyance at inoperative turbines (Devine-Wright *et al*, 2001; Wolsink, 1990). Perceptions of noise annoyance have on closer examination been found chiefly to derive from the negative attitude towards visual impact rather than to be informed by the actual sound pressure (Wolsink *et al*, 1993; Pedersen and Persson-Waye, 2005). In addition, negative attitudes may be reinforced by discontent with decision-making processes and the management of facilities (Gross, forthcoming; Hammarlund, 2002; Kahn, 2004; Thayer and Freeman, 1987; Walker, 1995; Wolsink, 1990; 1994).

The gap between attitudes and behaviour

The level of general public support for wind energy is high and stable in most countries. Nevertheless, wind energy projects are increasingly confronted with local level opposition, delaying or blocking implementation (Walker, 1995). Various studies have addressed this 'gap' between positive public attitudes and negative behaviour towards specific projects (Bell *et al*, 2005; Haggett, 2004). One explanation for this gap, often brought up by developers, policy makers and researchers, is the Not-In-My-Backyard ('nimby') explanation: individuals who support wind energy in general, oppose wind projects 'in their backyard'. However, several studies on infrastructure facility siting have refuted the validity of the nimby-argument as an explanation for most opposition (Devine-Wright, 2005a; Ek, 2005; Ellis, 2004; Hammarlund, 2002; Wolsink, 1994; 2000).

Wolsink (1990; 1994) has argued that the nimby-argument is based on a specific understanding of a social dilemma situation: wind power as a common good cannot be realised because of individually rational behaviour. Individuals maximise their own individual self-interest by not contributing to wind power development. This understanding is based on several assumptions, as Wolsink pointed out.

For instance, it entails the idea that wind projects represent a common good interest, and therefore stand above local interests. However, not everyone agrees with the perception of wind power as a common good; in fact, it depends on who defines what the common good is. Another assumption behind the nimby-argument is that everyone is agreed on the usefulness of wind power. This assumption is not valid, since there are in fact people who argue against the usefulness of wind power technology to generate electricity. Furthermore, the nimby-argument is based on the idea that none of the opponents (nimbys) would want a wind project in their own backyard. However, people may oppose a project in one location while accepting it elsewhere in their 'backyard'. Also, people who have objections against the technology may oppose projects anywhere, not just in their own backyard. The understanding of opponents as nimby's entails a static notion of attitudes and perceptions. Yet, research has shown that attitudes towards wind power can change over time, in reaction to changes in local context, social interaction and learning (Krohn and Damborg, 1998; Walker, 1995; Wolsink, 1990).

Wolsink also measured the occurrence of the nimby-attitude and found that it accounted only for a very limited percentage of opposition (Wolsink, 1990; 1994). A second attitude-behaviour combination he found was the so-called 'niaby' (Not-In-Any-Backyard), which involves a rejection of wind power technology, coupled with opposition against a wind project in the neighbourhood. Third, he identified cases of resistance against wind projects as a result of positive attitudes turning negative during the planning and decision-making process. A fourth attitude-behaviour combination involves resistance against specific projects that are considered unacceptable. Many people that are in favour of wind energy do not support it without qualification. For instance, most nature protection organisations are in favour of wind energy, but they will accept a wind project only if it does not negatively affect the landscape, environment, and wildlife.

As stated before, the majority of the public is generally in favour of wind power, and therefore the niaby-type of resistance will only account for a small percentage of opposition. In fact, resistance to proposed wind turbines more often appears to arise out of attitudes turning negative during the process of project planning and decision-making; alternately, conditional supporters may find the specific project design (e.g. location, size, ownership) unacceptable (Wolsink, 1994; 2000). On the basis of the above and other studies, it can be argued that using the nimby-argument to explain all opposition against wind projects is too easy. When the nimby-explanation is taken for granted as an explanation for all local opposition against wind schemes, there will be

little incentive to inquire into other possible motivations behind opponents' behaviour and to find ways to resolve conflict.

1.3.3 Local planning and project development approach

Wind power development often involves a spatial separation of advantages and disadvantages: the benefits of wind power are on a national and global scale, and for the investor, whereas the cost or burden needs to be carried at the local level, which means there is a potential conflict between national or global interests versus local ones (Wolsink, 1994). Other potential conflicts may arise between private and public interests, or environmental versus economic interests (Kahn, 2004). It is at the local level of planning and decision-making that all these differences in interests and potential conflicts become manifest (Wolsink, 1996; 2000; Pasqualetti, 2001; Van Erp, 1997).

In Western Europe, participation in local decision-making is in line with the principles of representative or indirect democracy. This means that participation signifies consultation: citizens have the option to respond to planning proposals and the local authority decides whether suggestions are taken up or not. Several authors have argued that current formal arrangements for consultation are inadequate, because people usually do not come forward with positive responses to project proposals (Devine-Wright, 2005a; Hammarlund, 2002; Kahn, 2004; Wolsink, 2000).

The approach to wind project planning, whereby procedures need to be in line with consultation requirements, has often been a so-called Decide-Announce-Defend (DAD) approach: the key issues are decided on beforehand, whereupon the plan is announced to the public, which is then invited to respond (Wolsink, 1994; Kahn, 2004). For wind power, the key decisions concern the location and the size of the project, and with the DAD approach these are not negotiable. For project developers it can be tempting not to involve the public at an early stage, as it is often thought that such involvement will merely result in unnecessary delays. The DAD-approach assumes that local knowledge and interests are not useful or legitimate, and that local concerns result from a lack of knowledge, which in any case could be remedied by one-way information and education efforts later on. When opposition occurs, it is easily attributed to nimbyism, and discredited as parochial and selfish. Against this, it can be argued that even where people oppose a project on the basis of self-interest, they may still be putting forward "genuine and rational concerns over quality-of-life issues that they can reasonably expect the planning system to take into account" (Ellis,

2004:1554). Moreover, to neglect concerns of conditional supporters may have the result of turning them into opponents. Putting off facing the public's disapproval until the formal permitting process may even cause more delay than if one decided to involve the public from early onwards (Hammarlund, 2002). Brushing aside local concerns involves the risk that opposition and conflict intensifies, and that the general support for the development erodes.

Ownership

Both the institutions of local decision-making, and the approach that developers adopt, affect the way in which local decision-making processes are conducted. Project developers have an important role in deciding whether and how to involve local stakeholders and how to cooperate with the local authority. Pasqualetti concluded in his study that the successful development of wind energy “depends on how well the wind industry learns to incorporate the public into decisions, both for the opportunities this allows for broader dissemination of information about wind power and for the suggestions the public can bring to the discussion about their concerns and how to accommodate them” (2002:169). Developers can involve stakeholders in the preparation of the project plan, and change it in response to their input. They can offer financial participation in the project, by offering shares to local residents. Furthermore, project developers can offer community benefits or contract local services in the project's development and management, in order to generate local economic benefits. These latter options as such have little to do with participation.

In addition, developers may be part of the local community, or invite members of the local community to participate financially. Financial involvement through local ownership can positively affect local attitudes to wind farms. Local ownership, in both Denmark and Germany, has resulted in a situation where many people are both socially and economically committed to wind power development. People with shares in a wind project are more favourable to wind power than people with no such economic interest (Christensen and Lund, 1998; Krohn and Damborg, 1999). Local ownership means that a wind project is fully or partly owned by members of the local community and it may involve farmers and/or other locally based investors (private individuals or companies). Members of the local community contribute to the investments in the project and part of the income generated by the wind farm remains within the local community. As such, it is a way to offset the local costs or burden. How the benefits are distributed, varies from case to case and benefits may not accrue to those that feel most offended

by the project. Local ownership in itself is no guarantee for enhanced participation in project development. Still, local actors who own and/or develop the project are usually better embedded in local social and political networks than ‘outside’ developers. They are in a better position to mobilise support and acceptance. This does not mean that ‘outsider-companies’ cannot choose to adopt a strategy of timely involvement and financial participation.

Collaborative planning for wind power

Local planning institutions that merely offer the possibility of consultation are often contrasted with collaborative planning and decision-making, related to ideas of deliberative democracy (Bell *et al*, 2005; Dryzek, 2005; Kahn, 2003; Wolsink, 2000). Instead of competitive interest bargaining, it aims at consensus building, involving all stakeholders and identifying diverse interests, encouraging those who usually do not actively respond to participate (Bell *et al*, 2005). Empirical studies on wind turbine siting present four arguments for collaborative or enhanced citizen participation.

1) *Compliance*: Case studies in England, Denmark and Sweden concluded that projects with high levels of participation in planning were more likely to be publicly accepted and successful (Kahn, 2004; McLaren-Loring, 2004). These findings correspond with research on other infrastructure facility siting (e.g. waste), which demonstrated that in cases of local collaborative decision-making processes, eventual realisation of the facility was more likely than in cases where a DAD approach had been in place (Kuhn and Ballard, 1998; Van Baren, 2001). Still, the outcome of a participative process might very well be that there are strong arguments against the proposal. In addition, in case there is a strong and well-organised local network opposing the wind project, the chances of implementation are limited, regardless of the approach adopted. Such a network will have little inclination to cooperate, since it does not want to change or negotiate the project, but to prevent it. McLaren-Loring’s study on local networks opposing or supporting wind farm developments concluded: “It appears that the presence of a strong group of opponents may be more significant to the end result than employing even the best participatory techniques” (McLaren-Loring, 2004:367).

2) *Knowledge*: If local stakeholders are involved in the preparation of the project plan (co-production), it can result in better plans and projects, since more sources of knowledge are involved. For instance, local stakeholders can provide vital information on matters of land-use development that is not apparent in land-use plans (Hammarlund, 2002).

Adaptations can be proposed and adopted that are in accordance with community needs (Gross, forthcoming).

3) *Legitimacy*: Gross investigated the perceptions of the members of a local community during the planning and decision-making process around a wind project in an Australian village (Gross, forthcoming). The respondents attributed importance to procedural justice principles like appropriate participation, the ability of voice to be heard, adequate information provision, being treated with respect, and unbiased decision-making. Perceptions of the fairness of the process, she states, relate to the perceived legitimacy of the final decision or outcome. People who perceived the process as having been fair were more likely to accept the resulting decisions and were more likely to have trust in the decision-making institution (Gross, forthcoming). The conclusion was that timely participation and engagement crucially affect perceptions of fairness among local stakeholders. Other studies have also indicated that dissatisfaction about the planning and decision-making process and a lack of control over the management of the facility can cause or enhance negative perceptions of wind power developments (Devine-Wright, 2005a; Hammarlund, 2002; Wolsink, 2000).

4) *Capacity building*: Participative processes contribute to developing capacities, skills and trust for future cooperation and joint problem solving among the participants. Many wind project proposals have divided local communities, negatively affecting local social cohesion and capacities for cooperation in other areas. Such negative experiences and the resulting resentment can moreover spill over to neighbouring localities, making municipalities reluctant to consider wind project proposals (Kahn, 2003).

Collaborative or participative approaches are no panacea for solving environmental and siting conflicts (Kahn, 2004). Differences in interests, values and power positions will remain and final decisions will not be such that everyone is satisfied. Moreover, a collaborative approach is no guarantee that citizens become motivated to participate. It can however be argued that enhanced participation is more conducive to successful implementation and social acceptance than a DAD-approach (Kuhn and Ballard, 1998). It decreases the chance that people turn against the project because of dissatisfaction with the manner in which the process has developed. A collaborative approach means that participants can start learning about how to create a context that is more conducive to implementation, without overriding other people's interests, taking into account a diversity of stakeholders (all actors involved in or affected by the development). Since wind power implementation has raised controversy, and since wind power

development cannot be imposed unilaterally, this learning is needed in order to align wind power implementation with other interests and to minimise negatively perceived impacts.

1.4 Institutional capacity for wind power implementation

We have argued that local involvement, financially and in decision-making (the latter through collaborative planning and involving relevant stakeholders in policy formation), tends to have positive effects on public perceptions of wind farms and to enhance support for wind schemes locally (Devine-Wright *et al*, 2001; Devine-Wright, 2004; 2005a; 2005b; Gross, forthcoming; Hammarlund, 2002; Kahn, 2004; Krohn and Damborg, 1999; Pasqualetti, 2001; Pasqualetti *et al*, 2002; Walker, 1995; Wolsink, 1996, 2000). This is an important point of departure for our international comparison. The local planning strategy and the developers' approach in a local context relate to the institutional arrangements in the energy domain, the domain of spatial planning, and the environmental policy domain (Gipe, 1995; Hull, 1995a; Wolsink, 1996; 2000).

We have discussed how prevailing institutions can impede wind power technology diffusion and implementation. In addition, the type of financial support system, how it is designed and implemented, as well as the way in which it is supplemented with other policies, can affect implementation in several ways, as we have seen in the discussion on feed-in tariff systems and quota obligation systems. In the domain of spatial planning, planning policy guidelines for wind power set criteria for wind power development, providing a more or less consistent framework for local planners to rely on, and providing more or less room for local planning authorities to consider the proposal in relation to the particularities of the local context. Planning institutions affect how local planning and decision-making processes are generally conducted. Finally, the manner in which and the extent to which environmental concern has become a central factor in policy-making in general, affects the commitment to renewable energy policies.

The socio-technical systems approach as discussed above emphasises the dynamic relation between actors and institutions, the interdependence among actors within and between networks - necessitating cooperation, and the importance of learning processes in order to reach innovation (Geels, 2004). The definition of institutions is broad, covering formal and informal rules that constrain and enable behaviour and regulate interactions (including values, norms,

expectations etc). This approach is not just relevant when studying technology diffusion, but also when addressing the policy and decision-making processes aimed at implementation of wind power. It has much in common with actor-centred institutional approaches and network theory, which we will discuss in chapter 2 (Scharpf, 1997; Klijn and Koppenjan, 2000).

The strong version of ecological modernisation addresses processes of political modernisation of democratic institutions that are implicated in transition processes. It argues for the need to institutionalise capacities for joint problem solving and learning, in order to be able to successfully achieve a change in the prevailing patterns and ways of doing. Several studies on local project planning and decision-making point in the same direction. Such processes of institutionalising capacities are what we call *institutional capacity building*. In order to understand how implementation achievements can be seen as an example of ecological modernisation - whereby wind power appears as a new technology that contributes to an ecological restructuring of the energy supply system - we need to investigate how wind power has become embedded within existing and changing practices, rules and routines of society, at the national level of policy-making as well as the local level of land-use planning, decision-making and implementation. The main question of our research is as follows:

How can we explain the diverging outcomes of wind power implementation with reference to institutional capacity building?

The concept of institutional capacity building is elaborated in the next chapter. Chapter 3 addresses the research method and design. The chapters 4, 5, and 6 contain the empirical case studies. The following chapter (7) investigates perspectives on wind power developments among key stakeholders. Chapter 8 presents the cross-comparison and the final chapter (9) draws conclusions on the basis of the comparison on institutional capacity building and discusses the wider relevance of these findings.

Scientific and policy relevance

This study aims at a better understanding of diverging implementation achievements by addressing the socio-political and institutional conditions and relating these to the manner in which place-making decisions have occurred. So far, no international comparative study has related the broader institutional arrangements to conditions that affect local investment decisions, siting processes and social acceptance. For

this empirical task, we need to develop a conceptual framework that takes account of the complex and multiple-level dynamics that are involved in processes aimed at wind power implementation. Our aims are not theoretical, although we will assess to what extent our conceptual framework can be useful for other geographical cases.

Many policy debates have concentrated too much on the question of how to achieve rapid increases in production capacity, while paying little attention to environmental impacts and the societal dimensions of wind power implementation (Szarka, 2006). This study attempts to demonstrate the importance of institutionalising capacities for wind power implementation. Although institutional capacity building is not something that ‘can be done’ by policy makers or governments (institutional capacity refers to the quality of processes), they do have an important role in facilitating such processes, and as such can contribute to a better societal embedding of wind power.

2 Theoretical considerations and conceptual framework

2.1 Introduction

This study aims at explaining the diverging achievements in wind power implementation in three geographical units. More specifically, it aims at understanding how and to what extent wind power, a new technology, has become embedded in existing and changing routines of politics and society.

A conceptual framework guides the search for explanations on the basis of prior expectations, informed by theoretical notions as well as earlier empirical research. It provides a guideline by specifying classes of variables in a structure that loosely sets out general relationships among these variables (Scharpf, 1997; Schlager, 1999). We need to develop a conceptual framework that addresses both the influence of the institutional context on interactions among actors, and the way in which actors have performed within this context and tried to influence it. This framework should enable us to capture the multitude of conditions and factors that have affected processes aimed at wind power implementation at different levels. In addition, it should enable us to relate these factors and conditions to achievements in terms of wind power implementation (i.e. the realisation of projects).

We draw on several theories, theoretical frameworks and approaches that are part of *new institutionalism*. We first discuss some broad differences in new institutionalist theoretical approaches, in order to clarify our own theoretical points of departure for this research. Next, we address theoretical frameworks for policy research, as well as insights from network theory and collaborative planning theory, which all inform our conceptual framework. Then we elaborate on our conceptual framework for studying policy processes around wind power implementation. Finally, we elaborate on how we adopt the concept of institutional capacity building to qualify for processes of cooperation, mobilisation of support among actors, across levels and over time.

2.2 New institutionalisms

Broadly speaking, new institutionalism captures a cross-disciplinary tendency towards a renewed interest in how the role of institutions can

contribute to the understanding of social and political outcomes. A variety of new institutionalisms have evolved (separately) in various disciplines like economics, political science, planning theory, sociology and comparative historical analysis, in response to the dissatisfaction within these disciplines with the manner in which outcomes tended to be explained (Hall and Taylor, 1996; Immergut, 1998; Powell and DiMaggio, 1991). It is not our aim to enter a theoretical debate on the various strands of new institutionalism. Instead, we will address some of the theoretical notions that inform the building blocks of our conceptual framework. For this reason, we briefly discuss how the various strands define institutions, what role they attribute to institutions in shaping, structuring or constituting the choices and the behaviour of social actors, and what role they attribute to actors that attempt to reach objectives within this institutional context.

2.2.1 Three strands of new institutionalism

Hall and Taylor (1996) distinguish three new institutionalisms: rational choice institutionalism, sociological institutionalism and historical institutionalism.

Rational choice institutionalist approaches draw on the general principles of game theory. This theory regards economic actors as being motivated by self-interest and as capable of adequately selecting those courses of action that will maximize their self-interest. In other words, individuals have fixed preferences and behave instrumentally rational in accordance with these preferences. Actors behave strategically in situations that can be conceptualised as games (Hall and Taylor, 1996; Thelen, 2003). Rational choice institutionalism defines institutions as ‘rules of the game’: structures of incentives that make up the opportunities and constraints for rational actors (Hemereijck, 2003). Institutions are created to solve collective choice problems, to reduce uncertainty or to lower transaction costs. They are designed in accordance with the functions they perform. Outcomes of processes are explained in terms of the fixed and a priori identifiable interests and preferences of individuals. Collective choices are explained by reference to individuals.

Various policy researchers that work with the premises of rational choice theory have broadened this rather narrow approach by acknowledging the influence of physical, normative and cultural factors on actors’ preferences and behaviour (Ostrom and Field, 1999; Ostrom, 2005; Sabatier 1998; Sabatier and Jenkins-Smith, 1999). Moreover, by interpreting policy change as partly resulting from interactions, the

notion of fixed preferences has been abandoned, since actors may change perceptions over time, as a result of interaction and learning.

Sociological institutionalism is more concerned with cognitive, cultural and normative explanations. The definition of institutions is very broad; it involves shared cultural understandings of what is 'good', efficient and legitimate. These shared understandings can be either explicit or taken-for-granted (Jepperson, 1991; Thelen, 2003). March and Olsen (1989) posed a conception of actors acting in accordance with what is considered appropriate in terms of their institutionalised role ('logic of appropriateness'). This goes against the rational choice approaches that regard institutions as designed through purposive actions by instrumentally rational individuals. Instead, individual choices and preferences are considered as culturally and historically embedded. What is deemed legitimate and appropriate differs across historical and cultural contexts (Powell and DiMaggio, 1991). In addition, sociological institutionalist approaches reject the idea of collective choices being merely an aggregation of individual preferences. Processes of interest aggregation do not add up individual interests, but reshape them, as new ideas develop through interaction. Moreover, in this process, the (redefined) interests of some gain in prominence at the expense of others (Immergut, 1998).

Historical institutionalist approaches have been called an agnostic middle course (Hemereijck, 2003; Mahoney and Rueschemeyer, 2003). Historical institutionalists criticise the notion that actors are always motivated by similar schemata - instrumental viability or social appropriateness. Instead, they argue that both strategic calculation about the behaviour of others, as well as normative scripts can motivate behaviour (Hall and Taylor, 1996; Scharpf, 1997). The concept of *bounded rationality* holds that options for actions are constrained cognitively, but also influenced by cultural and normative assigning of meaning (Scharpf, 1997). Institutions are defined as formal and informal procedures, routines, conventions and norms that structure the polity (Hall and Taylor, 1996). Institutional change may be caused by factors that differ from the ones that initially brought these institutions about (Mahoney, 2000; Thelen, 1999; 2003). Historical institutionalists draw attention to how institutional organisation structures collective behaviour, privileging some interests while marginalising others. They are interested in how institutions provide or impede access to decision-making for different groups in society (Hall and Taylor, 1996). In addition, historical institutionalism attributes importance to the influence of non-

institutional factors on political outcomes as well (Hall and Taylor, 1996; Steinmo, 2001).

Obviously, other distinguishing features between different institutionalist approaches can and have been identified. Within each strand differences are discernible and in recent years efforts to synthesise the strands have come up as well.

2.2.2 Institutional approach in our research

Definition of Institutions

In line with historical institutionalist approaches, we define institutions as *rules, patterns or procedures that structure behaviour and interaction*. These rules can be informal - norms, habits and customs - or formal - written laws, regulations and standards (Hall and Taylor, 1996; Hukkinen, 1999; Scharpf, 1997). The relationship between actors and the institutional environment is a dynamic one, in the sense that they mutually influence each other. While institutions shape and constrain the strategies and options of actors in significant ways, these institutions themselves can also be the intended or unintended outcome of actors' strategies and practices. Institutions structure the interactions among actors. In doing so, they empower some actors and perspectives at the expense of others. Conversely, institutions can be challenged, altered or reproduced by actors in processes of (strategic) interaction and in political conflict. However, institutional arrangements are unlikely to change overnight, except in extraordinary circumstances. They are regarded as relatively stable parameters (Sabatier, 1998).

Path dependency and wind power development

Historical institutionalist perspectives address unintended consequences as well as inefficiencies generated by institutions (Hall and Taylor, 1996). This is captured by the notion of path dependence, first developed by economists. They found that certain technologies became and remained successful over time because of initial advantages that were not related to the technology itself, but were brought about by events that were contingent - events that were not expected to take place and that were the effect of a concurrence of circumstances. Once this technology was chosen, it became subject to 'increasing returns' effects: more actors adapted to and invested in the prevailing technology. Path dependency here refers to a process in which it becomes increasingly difficult to replace technologies by (better) alternatives in the course of the

trajectory (Thelen, 2003). Political scientists have adopted the notion of path dependence from economists. Definitions of path dependence range from very broad ones to rather deterministic ones, but they all reject the idea that the same forces will lead to similar results in different places at different times. Although there is room for agency and choice, once a developmental path is started, the alternatives that were once viable become less so, as actors adapt their strategies in line with the prevailing institutional pattern (Thelen, 1999; 2003). Hence, options available at a given point in time are partly in function of capabilities that were adopted in some earlier period. Later developments are 'pre-structured', but not determined, by earlier developments (Mahoney, 2000; Thelen, 2003). Notions of feed-back mechanisms and lock-in effects are important to explain the persistence of developmental trajectories and institutional reproduction (Thelen, 2003). Critical junctures relate to institutional change or innovation and refer to moments when significant shifts open up the possibility of moving on along a new path (Mahoney, 2000).

Socio-technical innovation systems approaches explain technological innovation as the outcome of path dependent processes that are affected by the interplay of systemic conditions. Innovations are understood as non-linear processes that are affected by interdependent and multiple variables. New niches can provide opportunities to move along a novel technological path. In such niches, learning processes can take new directions; new social networks and institutions that support innovations can evolve (Geels, 2004). As for the diffusion of renewable energy technologies, prevailing institutions and material infrastructure of the incumbent energy system can present significant barriers. This not only affects technological innovation, but also implementation of these technologies. When promoting or developing wind projects, actors are confronted with institutional settings that may not be favourable to wind power implementation. Hence, implementation of wind power involves challenging the existing perceptions, values, norms, and rules that govern behaviour in the incumbent energy system.

A complex set of interdependent variables that are rooted in institutional arrangements influence the path of wind power development. These are not only related to existing institutions in the domain of energy policy, but also to those in the domains of spatial planning, environmental policy, and to other existing behavioural patterns that may affect wind power implementation. To understand how institutional arrangements have effected wind power

implementation in each of our three cases, we need to address different historical traditions that brought forth these institutions.

2.3 Theoretical frameworks on policy and planning

Frameworks to analysing policy processes

Concerning the part of the inquiry focussing on policy processes, our conceptual framework needs to address actors, interactions, the institutional context for that interaction, and change (Schlager, 1999). Several theories and theoretical frameworks have been developed and elaborated in order to understand outcomes of policy processes while accounting for the dynamic interrelation between institutions and actors.

Sabatier and others have developed, elaborated and later modified a theoretical framework to study policy change (Sabatier, 1998; Sabatier and Jenkins-Smith, 1998). This Advocacy Coalition Framework (ACF) presents a systematic and comprehensive approach to analyse policy processes, attending to a multitude of variables (institutional, situational, and physical) that affect actors' positions and strategies. The unit of analysis is the policy subsystem or policy domain. In a policy domain, actors from public and private organizations are actively involved with a policy problem or with a cluster of related policy issues and try to influence the policy process (Sabatier, 1999: 118). They form advocacy coalitions when they cooperate on the basis of shared policy belief systems, involving coherently ordered basic values, causal assumptions and problem definitions. These coalitions are central in the ACF. Advocacy coalitions compete for leverage; they develop strategies to influence the policy process and its outcomes. Institutional parameters and external events provide constraints and resources for coalitions. Policy outcomes are the result of coalition interactions and external impacts. Advocacy coalitions evaluate these outcomes. On the basis of this, and new information that may have come up in the meantime, a cognitive learning process can take place that may alter their policy beliefs. This, and changes and events from outside the domain may trigger policy change.

The ACF offers some ideas on how to structure our conceptual framework. Focusing on policy domains instead of on a policy programme has the advantage of being able to address actors and events that are outside of the formal policy-making arena. In addition, by taking

a long time frame, there is room to consider feed-back mechanisms, policy change and policy learning.

The ACF emphasises the importance of cognitive processes when accounting for policy change. However, it does not delve into the manner in which the institutional context influences strategies of actors and coalitions (Schlager, 1999). Moreover, it pays little attention to power relations and interdependencies among actors (Fenger, 2003). For these reasons, we now turn to theoretical approaches that concentrate on how the relation between institutions and actors, and relations among actors affect outcomes and change. Unlike the ACF, these approaches do not take rational choice institutionalism as their (sole) theoretical basis.

The actor-centred framework for policy research (Scharpf, 1997) emphasises policy-making as intentional action and interaction in which purposive actors aim at certain outcomes. This framework addresses the manner in which institutions structure the interactions among actors that are dependent on one another. However, what actors choose to do is not only affected by institutions, but eventually by their orientations and strategic capabilities. Strategic interests, cognitive and normative orientations as well as interaction-orientations affect behaviour. Depending on the situation and the policy problem, different orientations may be activated (Scharpf, 1997; 2000). In the actor-centred framework, three sets of variables influence the capacity of policy-making systems to adopt and implement effective responses to policy problems: the nature of the policy problem, the orientations of policy actors, and the characteristics of the institutional setting. The framework addresses the nature of networks, resource dependencies and interactions in policy processes (Hill and Hupe, 2002).

Network theory draws on Scharpf's work on cooperation and networks. In network theory, policy processes involve complex interactions among a large number of actors, who depend on each other because they need each other's resources (e.g. knowledge, compliance). This interdependence necessitates cooperation, in order to achieve satisfactory outcomes. Moreover, cooperation has a function of solving tensions among actors with conflicting goals and interests (Klijn and Koppenjan, 2000). Network theory explains policy outcomes in terms of cooperation that has evolved through network formation. In doing so, it focuses on process variables or the structural characteristics of the network (Hill and Hupe, 2002). Policy networks or policy communities are defined as "(more or less) stable patterns of social relations between interdependent actors, which take shape around policy problems and/or

policy programmes” (Klijn and Koppenjan, 2000:155). Actors’ decisions to cooperate depend on how they perceive their mutual interdependence and the advantages of cooperation. The resulting judgements can be strategic, normative or interaction-oriented. Unlike advocacy coalitions, policy networks do not necessarily involve actors with shared core values and normative orientations (Atkinson and Coleman, 1992).

Interactions are influenced by institutions that regulate behaviour and resource distribution. These institutions - rules and norms - provide each individual participant with a degree of certainty that the other participants will also adhere to them, and hence encourage cooperation and the building of trust. On the other hand, they also reflect and maintain status positions among actors, and provide unequal access to decision-making processes. Interaction and cooperation need to be understood in this context of unequal power relations. Actors that are not part of the policy network are unlikely to see their interests and preferences represented (Klijn and Koppenjan, 2000). Moreover, some networks are better able than others to mobilise support and to get issues on or keep them off the political agenda. Institutions’ role in the ‘mobilisation of bias’ is that they reflect and maintain the existing distribution of power: “All forms of political organization have a bias in favor of the exploitation of some kinds of conflicts and the suppression of others because organization is the mobilization of bias. Some issues are organized into politics while others are organized out” (Schattschneider, 1960:71). However, institutions as well as the distribution of power may change over time, as a result of action and interaction.

Depending on the position and leverage of relevant stakeholders in policy-making, their judgements feed back into the policy process, and this may result in the reformulation of problem definitions, goals and instruments. Moreover, through cooperation and interaction, actors may change their perceptions, arrive at new understandings, in other words, learn (Klijn and Koppenjan, 2000). Network theory regards this learning as important to arrive at effective, efficient and legitimate policy processes and outcomes. In addition, it can result in institutional changes. Interactions among actors with certain types of knowledge affect how a problem is defined, or how an issue is framed. Frames are shaped interactively and represent shared judgement. Problem definitions and solutions relate to normative orientations (Scharpf, 1997). People proceed by way of arguments to get from a problem definition to some sort of solution (Schön, 1979; Van Eeten, 1999).

Our conceptual framework for studying policy processes regarding wind power implementation adopts notions from the ACF, as well as from network theory and actor-centred institutionalist approaches (table 2.1).

Table 2.1 Analysing policy processes: points of departure

Policy process	<ul style="list-style-type: none"> - Complex interactions among a large number of actors, institutionally embedded - Long term focus, to identify changes in policies and institutional change
Comprehensive set of variables	<ul style="list-style-type: none"> - Physical, situational, nature policy problem, actor orientations, institutional setting
Policy domain	<ul style="list-style-type: none"> - Unit of analysis to study policy processes and change - Actors and networks of both public and private domains
Institutions	<ul style="list-style-type: none"> - Enable and constrain actors and interaction - Shape expectations - Reflect unequal power distribution - Can be challenged and changed by action
Actors, action and interaction	<ul style="list-style-type: none"> - Emphasis on purposive actors, intentional action and interaction - Diverse orientations (normative, interest, cognitive, interaction-oriented) - Action: affected by institutions and by actors' orientations and capabilities - Interdependence: need to cooperate to solve problems, network formation - Policy outcomes result from interaction, cooperation and conflict
Framing and learning	<ul style="list-style-type: none"> - Learning through social interaction: new problem definitions, goals and instruments. - Framing: interactive, normative and argumentative

Collaborative planning

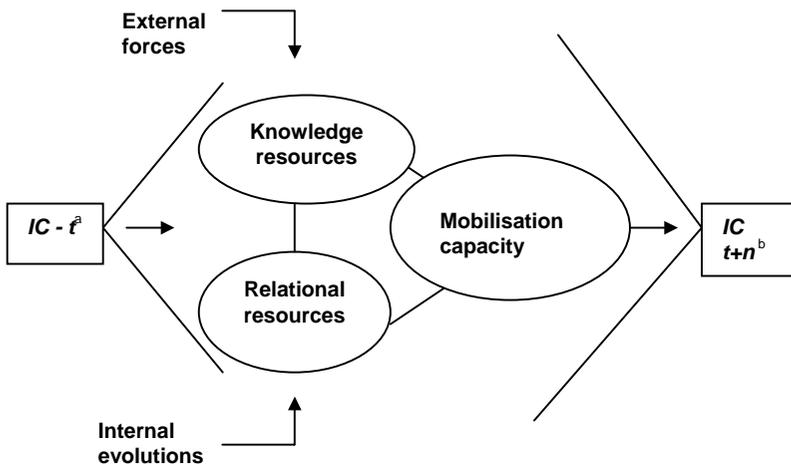
Since we want to include conditions for local planning as part of our framework, it is useful to address collaborative planning theory. Collaborative planning is part of the so-called 'communicative turn' in planning theory, which refers to new institutionalist approaches that focus on collaboration, cooperation and deliberation (Healey, 1997; 1998; Innes and Booher, 1999; 2003). Like network theory, these approaches start from a recognition that the old dichotomy between state and civil society no longer applies. Changing relationships between government, market and citizens have resulted in processes in which new mutual relations are evolving, partly outside the established political arenas.

A point of departure of collaborative planning theory concerns the observation that expert and scientific knowledge have long been perceived to provide the only legitimate input for policy-making and planning. This dominance of instrumental rationality has overall resulted in technocratic and top-down planning and decision-making, with too little regard both for collaboration and for knowledge that does not derive from the accepted 'canon'. The Habermasian ideal of communicative rationality and action presents an alternative to its instrumental counterparts (Healey, 1997). Communicative action involves a form of dialogue in which all stakeholders engage on the basis of equal power positions. In this manner, those forms of knowledge, reasoning and frames of reference hitherto excluded become involved in the process (Healey, 1997; 1998; Innes and Booher, 1999; McGuirk, 2001).

To overcome the dominance of instrumental rationality, and to enhance democratic decision-making, processes can be shaped such that a temporary context is created in which stakeholders have equal power and in which consensus can evolve. The aim of such approaches in local planning is to arrive at a mode of governance that is "place-focused, open-minded, aware of traditions and facilitative of the opportunities and ambitions of residents and others with a stake in the place" (Healey *et al.*, 2003:61). Emphasis is placed on the role of language and discourse, on the social interactive nature of these processes, in which meanings are constructed, new rules and practices are shaped and attributed legitimacy (Healey, 1998). Studies on innovative local planning practices that involve consensus-building and collaborative planning have come up with several conclusions (Innes and Booher, 1999; Healey, 1997, 1998). One is that in terms of tangible outcomes - e.g. agreements, plans, regulation - consensus-building processes are likely to produce outcomes which are regarded as fair, if participants regard the process as having been fair (Innes and Booher, 1999). Furthermore, the less tangible but equally important outcomes involve the creation of social, intellectual and political capital. These three types of capital come together in the concept of *institutional capacity building*, developed and applied by Healey (figure 2.1). She distinguishes three analytical dimensions: knowledge resources (intellectual capital), relational resources (social capital) and capacity for mobilisation (political capital). Knowledge resources include types of formalized knowledge, tacit knowledge (non-codified knowledge, 'know-how', often ingrained in culture and habits) and experiential understanding, which relate to multiple levels, in the context of specific practices. The willingness to share knowledge and learn from

one another can result in improved mutual understanding, shared problem definitions and hence the creation of intellectual capital. Moreover, through such interactions, people create identities and relational bonds with others, based on mutual trust, and this results in the creation of relational resources, which positively affects the processes of joint problem solving. Mobilisation capacity results from the ability to mobilise these knowledge and relational resources, to develop new capacities and durable collaborative relations among people (Innes and Booher, 1999).

Figure 2.1 Institutional capacity building



Source: Healey *et al*, 2003:64.

^a IC- t: institutional capacity at moment t

^b IC t+n: institutional capacity at t+n

This understanding of institutional capacity building as a strategy assumes the possibility of creating a context where open communication is not distorted by strategic behaviour and power differences. This assumption has, however, come under criticism for making the processes studied appear to be more collaborative and inclusive than they really are (Ellis, 2004; Phelps and Tewdwr-Jones, 2000). McGuirk has argued that by insufficiently addressing the practical context of power relations in which planning practice is positioned, the advocates of communicative planning are “assuming away rather than engaging with, the politics-laden and power-laden interests that infiltrate planning deliberation” (McGuirk, 2001:196).

Collaboration in a context of unequal power relations

Both network theory and collaborative planning theory emphasise the interdependence of actors and regard the development of collaborative networks as important for effective and legitimate policy processes and implementation. Both stress the need to facilitate collaborative processes in which interactions between actors with diverging perceptions and interests result in the formulation of common goals and interests, and both aim at prescriptions to manage or shape such processes.

In chapter 1, we noted that strong ecological modernisation emphasises that environmental reform does not involve a neutral and objective programme that serves a commonly agreed public interest, as political conflict will be inherent in its implementation (Dryzek, 2005). In fact, the conception of a singular public interest is problematic since there are often multiple and conflicting views on what the public interest involves. A participative approach allows for a deliberation on these diverging conceptions.

Institutionalising capacities for collaboration, joint problem solving and realising changes in ways of doing need not imply a negation of the politics-laden nature of planning and policy-making. On the contrary, the importance of power differences is acknowledged, followed by efforts to democratise processes. A political modernisation of democratic institutions is implicated in strong ecological modernisation, in order to enable ecological reforms. Wind power implementation is an example of a broader restructuring of the energy system along ecological lines, and as such an example of ecological modernisation. When institutional conditions are changed in such a way that they support successful implementation, it may become an example of strong ecological modernisation.

2.4 Conceptual framework

Participation and cooperation for wind power implementation

In line with several approaches discussed above, we argue for the importance of local collaborative or participative decision-making processes in order to build a supportive basis for wind power development. Our inquiry focuses on the extent to which participative processes have been facilitated or not over an extended period of time. We do not inquire into the fine-grains and communicative dynamics of innovative planning practices. The processes we address in our research are characterised by unequal power relations among actors, diverging

access to resources and decision-making, and strategic behaviour. Tensions exist because of the interdependencies and divergence in interests, goals and perceptions.

Participatory decision-making involves a more direct involvement of relevant stakeholders in plan making - beyond formal consultation - for both normative and instrumental reasons. For wind power, these arguments can be elaborated as follows. Compared to conventional energy supply, wind power technology involves relatively small-scale, decentralised and location-dependent applications. It is at the local level where adoption of wind power technology eventually has to take place. Implementation achievements can be related back to numerous local decisions on place making and investments in wind projects (Hull, 1995a; Pasqualetti, 2001; Wolsink, 2000). The outcomes of all these local decision-making processes eventually make up the aggregated - on national or state level - installed capacity levels. Even when there is a positive public attitude towards wind power, concrete concerns and diverging interests become manifest in local planning-and decision-making processes where land-use issues, cost-benefit sharing and quality of place may become sources of contention and conflict.

A certain degree of support and approval from actors with 'a stake in this locality' is needed. This is because even less powerful (local) actors can deploy means to delay or halt implementation when they consider their interests to be harmed or not taken into account or when they consider the process as having been unfair. In that case, they may actively mobilise support against wind power development. Participatory decision-making is unlikely to turn people who fundamentally oppose wind power into supporters. However, conditional supporters - e.g. local residents or nature protection organisations - may accept a wind project if they have been given an opportunity to influence the choice of the location and the project design. In addition, relevant stakeholders bring in their knowledge and experiences, which can improve the quality of the plan and design. Apart from these instrumental reasons (compliance and knowledge), a normative argument in favour of participation is that it enhances the democratic legitimacy of both the process and the outcomes (Healey, 1997; 1998; Klijn and Koppenjan, 2003). Hence, participative processes are more likely to result in local social acceptance of or even active local involvement in and commitment to wind power development - even from actors who usually do not come forward to respond to a plan or proposal.

For supra-local policy processes, a similar reasoning applies. Exclusion of stakeholders may result in policies that fail to take into

account their interests, knowledge and experience. This can thwart the effectiveness of these policies as well as undermine their legitimacy. Inclusive processes can enhance legitimacy and reduce conflict, and improve the outcomes, in terms of adequate policies and well-planned projects that take account of relevant (local) interests (Healey, 1997; Klijn and Koppenjan, 2003).

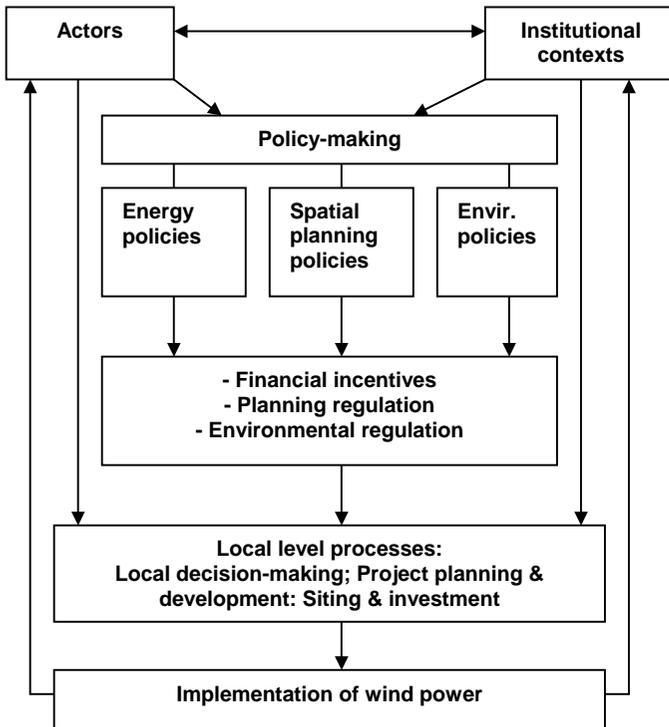
Framework to study wind power policy processes

In each of the three cases that are part of this study, wind power entered the national policy agenda after the oil crisis in 1973. The incumbent framework of thinking about energy supply influenced early policy choices. The manner in which policies initially responded to the needs of a new technology like wind power, has affected its development. Hence, we examine how early (policy) choices have constrained later options, and how institutional arrangements have been adapted to create positive conditions for wind power development. These path dependent trajectories may have been affected by (external) shifts and unexpected events. To account for the unfolding of the historical trajectories of wind power development within diverging institutional contexts, we attempt to relate policy processes to implementation achievements. Policy processes are understood as interactive processes involving the formulation of problem definitions and solutions (policy-making), and the adoption and implementation of policies (Sabatier 1998:98). These processes are institutionally embedded (Hemereijck, 2003). For each case, we inquire into the variables and interrelations depicted in figure 2.2. The composite elements are elaborated as follows.

Wind power implementation involves and affects multiple *actors* with diverging interests, preferences, goals and strategies. These actors are stakeholders because they have a stake in whether and how wind power implementation takes place. They may try to exert leverage on policy-making, local decision-making, project planning and implementation. Different stakeholders have different resources, e.g. money, status, connections and knowledge. This knowledge can concern both the level of national policy-making as well as local processes and contexts and may consist of various types, such as technical, economic, spatial planning, environmental, local, experiential and tacit knowledge. Different types of knowledge are not value-free and are often connected to certain specific interests. The behaviour of these actors is structured by the institutional context, but also affected by their (strategic, cognitive, normative and interaction-related) orientations and strategic capabilities (Scharpf, 1997).

The *institutional context* involves rules, norms and agreements that structure the interactions among actors, in policy-making, local decision-making and project development. Institutional arrangements influence how national policy processes are conducted, how decisions are taken, who is involved in these processes and what problem definitions are taken up. Laws, regulation and policies from several policy domains influence processes of wind power implementation. In addition, institutionalised ways of project planning and development, local planning traditions in decision-making on land-use and development, and national planning institutions, all affect how participation is provided for.

Figure 2.2 Wind power policy process



Policy-making is an interactive process in which problems and solutions are formulated. Depending on the configuration of actors involved and their cooperation, various knowledge resources are included or excluded from these processes. This affects how a policy issue is framed; what problem definitions and solutions are formulated. Policy-making is a

political process and the outcomes depend on how interests and values are represented in the political configuration of the actors involved. Over time, changes in policy frames and policies can result from broader (institutional) events, or from changed understandings that result from interactions among actors and knowledge types hitherto discarded or ignored.

Policies formulate goals and instruments, based on a certain problem definition. Policies provide incentives, rules and constraints that are relevant for those involved in wind power siting and investment decisions, but affect other stakeholders and interests as well. Policies with direct relevance for wind power development come from the domains of energy policy, spatial planning and environmental policy. In addition, EU-level policies also affect wind power implementation.

At the *level of implementation*, final decision-making with regard to permitted land-use takes place. For actual realisation of wind power, siting and investment decisions are essential. In the cases we have studied, such decisions are set in the local planning context. By the *local level*, we mean the local level of implementation, where decisions about investments and about building wind projects are taken and where activities concerning the realisation of a wind project take place. It concerns the locality where actual realisation takes place. The manner in which decision-making is organised at this level of implementation affects local investments, siting and social acceptance. Local level processes are shaped by the broader institutional context and policies as well as by local politics and particularities. While the latter are outside the scope of this research, we can address how institutional arrangements and policies have affected conditions for local implementation processes. It is not our aim to specify how participative processes should be organised. Our inquiry is confined to assessing how conditions for local level processes have changed over time, and how these have facilitated or inhibited the inclusion of various stakeholders and their sources of knowledge. Hence, the way in which local planning processes are structured by the spatial planning system, the effects of wind power planning policies, and the effects of policies providing financial incentives for wind project developers, all bear an impact on who is involved in what manner. In addition, the project developers' approach is important, as this can also affect how participation of local stakeholders in project planning and development is provided for. Outcomes at the local level of implementation, in terms of implementation achievements, perceived barriers to implementation,

local opposition, local concerns about the impacts and cost-benefit distribution, can feed back into the policy process at higher levels.

Policy communities and institutional capacity building

Wind power as a policy issue involves interests, concerns, and competences across policy domains, touching upon energy and industrial policy, spatial planning, and environmental policy. It cross-cuts sectoral divisions and institutions. Different government ministries are involved, as well as different levels of government, since national policies need to be translated at local and regional levels. Wind power implementation involves and affects multiple actors. To identify how actors have been included or excluded in policy processes and in processes at the level of implementation, and to assess the positions of actors (actor configurations) and their interactions, we use the concept of *policy community*. A policy community gathers interdependent actors and their knowledge resources around a policy issue, in our case wind energy, on various levels - local, regional, national - within the context of existing and changing routines and practices in the relevant policy domains. Policy community members have diverging interests and perspectives, and coalitions of community members may form around alternative perspectives. For this reason, attention needs to be given to the diverging perspectives and the role these have played (Atkinson and Coleman, 1992). The way in which government has fostered cooperation and the formation of a policy community will also come under consideration (Hill and Hupe, 2002).

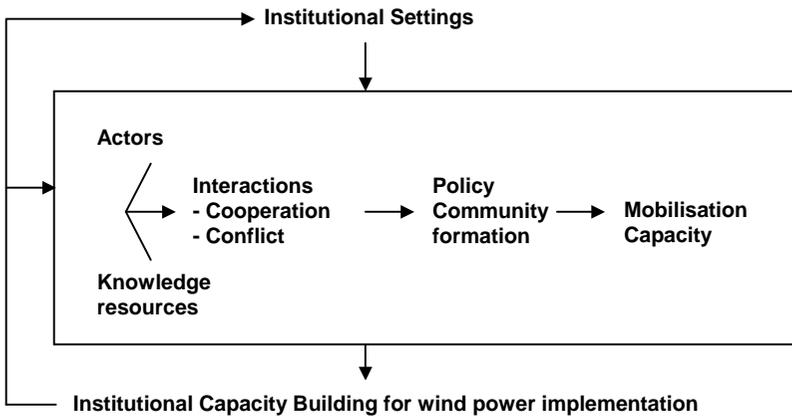
The time frame of over a decade allows us to assess the formation, consolidation and change of policy communities, their openness to external influences and shifts in terms of those included and excluded, as well as the potential for policy learning (Atkinson and Coleman, 1992).

To relate institutional conditions, institutional changes and processes of policy community formation to actual implementation achievements, we have adjusted the concept of *institutional capacity building*. Institutional capacity refers to the capacity to develop relationships between actors that are interdependent for achieving satisfactory outcomes (figure 2.3). It is about the capacity to facilitate open policy processes that provide access to relevant stakeholders and room for various types of knowledge resources (Healey, 1997; 1998). Open and inclusive policy and decision-making processes involve interaction, cooperation and conflict (over resources, problem definitions and over the rules).

We investigate how actors, within the institutional context, have mobilised support for wind power implementation through interacting with other actors, in and through policy-making, project planning and implementation practices. Depending on how a policy community has evolved around wind power and the leverage of this community, various *knowledge resources* have been included in or excluded from these processes. Mobilisation of political and societal support refers to various levels, involving both the national level of policy-making as well as the local level of implementation. Patterns of support mobilisation for wind power implementation in and through policy-making, project planning and implementation practices over time reveal the *mobilisation capacity*, which is the capacity to collectively act on a given issue, the capacity to pool efforts to overcome problems. This capacity building has been affected by institutional conditions. It concerns both the extent to which actors with a stake in local decisions about wind power implementation have been involved in these processes as well as the extent to which national policy-making has been able to include relevant stakeholders.

Institutionalising capacities for wind power implementation is about cooperation, addressing conflicting interests and values, exchange and learning, in order to achieve a change in incumbent patterns and perceptions of energy generation, towards the institutionalisation of more sustainable patterns of energy generation and use.

Figure 2.3 Institutional Capacity Building for wind power implementation



The conceptual framework on policy processes (figure 2.2) addresses the variables and interrelationships that we investigate. The model on institutional capacity building for wind power implementation (figure 2.3) allows us to qualify these processes. The next chapter containing our research questions shows in more concrete terms how we structure our inquiry in the three cases, and how we arrive at a comparison.

3 Research method and design

3.1 Introduction

This chapter presents our research design and translates the conceptual framework on policy processes and the model of institutional capacity building into concrete research questions. We first discuss the method of multiple case study research and the selection of our cases. Next we address the single case studies, the composite elements of inquiry, and elaborate on the research questions. Then the cross-comparison is attended to. This is followed by a discussion of data collection, methods of analysis, and notes on reliability and validity.

3.2 Multiple case study research

Case-study research is suitable for empirical research in which a contemporary phenomenon is studied within its real-life context, whereby the boundaries of the phenomenon and its context are not clear-cut, and where several ‘sources of evidence’ are used (Yin, 1994:13). These characteristics also apply to our research on wind power implementation. We adopt a multiple embedded case design, consisting of three separate single-case studies. The conclusions of these three separate case studies are taken up for cross-comparison. While acknowledging the particularities of each case, we aim at an explanation that generalises beyond the level of the single cases.

Case selection

The selected cases differ in terms of achievements in wind power implementation, but are comparable in other aspects. We have selected cases from within the European Union (as of 2001), that are all subject to EU law and regulation - e.g. the Birds and Habitats Directives, EU directives on energy market liberalisation and on the promotion of renewables. The national governments of all three cases have (at least in words) committed themselves to the development of wind power, as evidenced by policies for wind power that date back to the seventies. In addition, in each case the general public attitude towards wind power has overall been positive (Wolsink, 1994; Walker, 1995; SDC, 2005). This means, incidentally, that different achievements cannot be attributed to diverging public attitudes towards wind power.

The three geographical units are the Netherlands, North Rhine-Westphalia (NRW) and England (map 3.1). While all three national governments have expressed the goal to substantially increase the installed capacity of wind energy, the results have been very impressive in NRW but rather disappointing in the Netherlands and England. However, one should not measure success rates against the targets of national governments, since this assumes that central government is a unitary and neutral actor that sets the right standard since it represents the ‘common good’ (Klijn and Koppenjan, 2000). This assumption is in fact difficult to hold, given the frequent disagreements between government ministries as well as between levels of government.

Map 3.1 The three cases



Table 3.1 shows implementation achievements in absolute numbers of installed capacity levels throughout the years. North Rhine-Westphalia is a successful case, the Netherlands less so and England least of all. When making allowance for climatological conditions - wind resources - surface area and population density, these judgements still hold (table 3.2; map 3.2). Nor are they affected when taking into account project failures over time and the rise of opposition against wind power development in each case. Apart from this qualification of success and failure (further discussed below), we identified stakeholder evaluations of success or failure during our research.

Table 3.1 Cumulative installed capacity levels (MW)

	1992	1995	1998	2000	2004
Netherlands	57	257	364	442	1,080
England	± 15	72	90	123	184
NRW	± 15	110	326	644	2,053

Sources: BWE, 2005a; BWEA, 2005; CBS, 2005b; LSOW, 2004

Table 3.2 Land surface, population and population density (2004)

	Surface Area (km ²)	Population (number of people)	Population density number of people/km ²
Netherlands	34,000	16,258,032	481
England	130,400	50,093,100	384
NRW	34,084	18,075,352	530

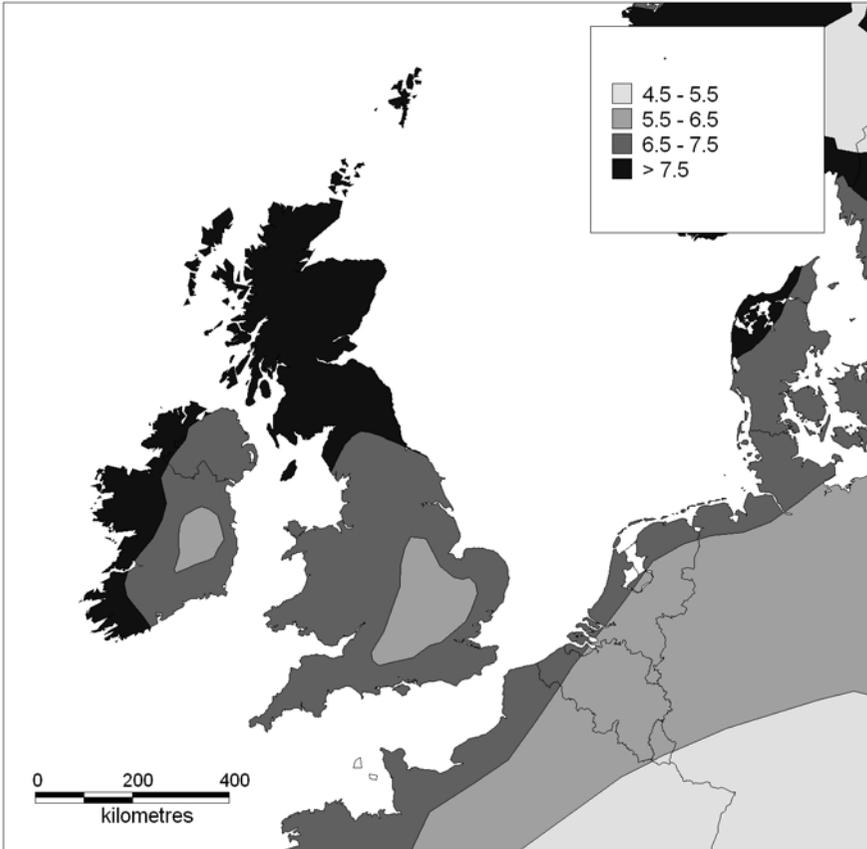
Sources: CBS, 2005a; LDS, 2004; National Statistics, 2005

Our first pilot case, the Netherlands, was a practical choice, for we are based there. Moreover, previous research on implementation of wind power in the Netherlands served as a proper starting point (Wolsink, 1996). In the early nineties, the Netherlands was the third wind power country (behind the US and Denmark). However, getting sites available for implementation soon became ponderous. Many project initiatives have never been realised. Growth stagnated and the turbine manufacturing industry withered away.

In contrast, Germany's growth in installed capacity increased rapidly after 1991. Within a few years, several German states had surpassed the Netherlands. A common sense argument would be that implementation in the Netherlands has remained behind because of its dense population. However, the German state of North Rhine-Westphalia (NRW) is a densely populated area as well, but there it did not pose a barrier to implementation. NRW is one of the three forerunner states in wind energy in Germany. Even though, being land-locked, it has less favourable wind resources than the Netherlands, the

installed capacity of wind power has been considerably higher. For this reason, a comparison between these neighbours would be interesting. Apart from NRW, two other countries were eligible as ‘success’ cases: Denmark and Spain. Practical reasons prompted the choice for NRW; language would pose difficulties in analysing Danish or Spanish policy documents.

**Map 3.2 Wind resources at 50 (45) m above ground level
(metres/second)^a**



Source: Danish Wind Energy Association (2003)

^a This map gives a very rough indication (wind speeds are based on the assumption of sheltered terrains only; for more detailed information, see www.windpower.org/en/tour/wres/euromap.htm).

Our third case is England, slightly less densely populated than the other two cases, with better wind resources than either NRW or the Netherlands, but with very little success in implementation so far. Early opposition against wind projects has impeded implementation. Like in

the Netherlands, conflicts at the level of local planning have come to the fore from the early nineties onwards. Since we are interested in conditions for local planning processes, a comparison that includes England would be interesting.

Unit of analysis and scale levels

Our three units of analysis are the cases the Netherlands, North Rhine-Westphalia and England. The levels of analysis in all three cases concern the national level and sub-national levels. Wind power development involves interests, concerns, and competences across policy domains and across levels of government. The local level of implementation is addressed indirectly, since we merely inquire into the conditions that shape local level processes

For each case, we address the national level and sub-national levels (state, country, region, municipality). As both the policies and implementation achievements of Germany's several federal states vary widely, we have decided to concentrate on a single state. NRW, like Germany as a whole, has performed well in terms of implementation. North Rhine-Westphalia, Schleswig-Holstein and Lower-Saxony have been the three pioneering states in wind power development. We inquire into the German national context of policy-making and politics, but limit the account of sub-national developments and achievements to those pertaining to NRW. NRW is the 'field' in which national policy processes interact with the state-level context and sub-state levels. However, where relevant - e.g. with regard to the development of a policy community around wind power - we cross the state border as well. Focusing on NRW does not mean that we regard this state as illustrative for the whole of Germany.

For similar reasons, we chose England instead of the UK as a case. Different policies and planning arrangements have been in place in Scotland and Wales. England is not representative for the whole of Britain - e.g. Scotland has much more installed capacity. Like NRW, England is treated as the level where national policies have worked out in a certain manner and supra-country factors will be taken into account where necessary to understand the developments in England.

3.3 Single cases and cross-comparison

3.3.1 Single case studies

Each case history starts around the first oil crisis in 1973, but the overall emphasis is on the period from 1990 until 2004. This time frame is long enough to identify policy change and changes in institutional conditions (Sabatier, 1998). The elements of inquiry are summarised in table 3.3, with references to the variables of the policy research framework (figure 1.2, chapter 1) they involve. We discuss these elements in the same order as they appear in the case chapters.

Table 3.3 Elements of inquiry at the single case level

Elements	Account of:	Analysis in terms of:
Stories on wind	Stakeholders' views on wind power developments	Differences in interests, concerns, problem definitions and solutions
Policy domains	<i>Energy domain:</i> early developments; energy sector structure & change; liberalisation; project developers; turbine industry	Historical development within the policy domains; institutional arrangements; policy processes; actors; interactions; policies and effects on actors and
	<i>Planning domain:</i> planning system & change; planning policy for wind; local planning practices for wind power implementation	implementation; policy change; conditions for local project planning and development, for siting and investment; implementation achievements;
	<i>Environmental policy domain:</i> environmental policies related to wind power; institutionalisation of environmental concern	policy frames
Policy communities	Early formation network; consolidation; local grass roots; government efforts; mobilisation of support	Historical account of stakeholder cooperation to mobilise support for wind power; conditional supporter's involvement; opponents' networks
Institutional capacity building	All	Historical process of institutionalising capacities and relation to implementation achievements.

Stories on wind

Each case starts with an introduction to and illustration of the issues, conflicts and alliances that stakeholders refer to in their accounts of the current situation. A diversity of stakeholders can be identified: different types of wind project developers (e.g. wind cooperatives, energy-sector

developers, independent (non-energy company) project developers, farmers); wind power branches; energy sector branches; national and sub-national environmental, nature and landscape protection organisations; local and national anti-wind energy initiatives; regional and municipal officials involved in spatial planning; policy makers from ministries that are competent in the fields of economic affairs, spatial planning, and environmental policy.

On the basis of these stakeholders' accounts, stories are constructed (section 3.4). Different stories reflect diverging interests and orientations, and differ in assessments about whether, how and by whom wind power is to be implemented. A comparison of these stories within each case reveals issues on which there are fundamental disagreements among proponents, conditional supporters and opponents of wind power development (table 3.4).

Table 3.4 Research questions on the stories

1. What are current contentious issues that the stories refer to?

- On what issues do the stories reflect disagreement between stakeholders?
 - What interests, issues or types of knowledge have not been properly recognised, involved, given attention, according to the respective stories?
-

Institutional arrangements and change in policy domains

What follows is a comprehensive historical analysis of the broader context within which wind power policy-making and implementation has taken place (table 3.5). We address the institutional arrangements and changes in several policy domains and how these have influenced policy processes for wind power and implementation (realisation of wind projects). For wind power, three of such domains appear to be particularly relevant: the energy domain, the spatial planning domain, and the environmental policy domain (Hull, 1995b; Pasqualetti, 2002; Wolsink, 1996; 2000). In these domains, both public and private actors are directly or indirectly involved with policy issues relating to wind power development and try to exert influence on the policy process (Sabatier and Jenkins-Smith, 1999).

First, we address the *energy policy domain* and how institutional changes in the energy supply system have affected the opportunities for wind power development throughout the years. Policies providing financial support for wind power have been devised mainly within this domain, except for Germany, where the competence for wind power policy shifted to the environmental ministry after 2002. We address how these policies were shaped, and which stakeholders, interests and perspectives were involved in or excluded from these processes. For

instance, we address the influence of the conventional energy sector on wind power policies, compared to the leverage that other stakeholders can exert.

Table 3.5 Research questions on the policy domains

2. How have institutional conditions and changes in the energy domain, the domain of planning and the environmental policy domain, affected implementation achievements?

Energy domain:

- How has the energy supply system been organised and what significant changes have taken place?
 - How has wind power been taken up in policy-making and which actors have been involved?
 - What has been the role of conventional energy companies in policy-making and wind power implementation?
 - How has liberalisation affected the organisation of the energy system, the relations between government, energy sector and actors involved in wind power development and how has this affected wind power implementation?
 - What kind of industrial policies have been devised to support the wind turbine manufacturing industry?
 - What kind of financial support systems have been in place and how have these supported various actors involved in wind power implementation?
 - How successful have these financial support systems been in boosting wind power implementation?
-

Spatial planning domain

- How has the planning system been organised and how has it changed over time?
 - How have local decision-making processes for wind power usually been conducted? How has participation been provided for?
 - What planning policies for wind power have been adopted and how have these affected (local processes for) implementation?
 - How can we characterise the project planning approach generally and what important changes have taken place over time (in terms of local planning processes and project developers' approaches)?
-

Domain of environmental policy

- How has environmental concern become embedded in society and politics and how has this affected wind power policies and implementation?
 - How and to what extent has environmental policy been relevant for wind power development?
 - How has environmental policy affected policies in other domains?
-

In addition, the effects of the wind power policies are investigated. Effects on implementation as well as on industry - turbine manufacturing and related industries - are accounted for. We also examine how financial support systems have facilitated different types of project developers (e.g. incumbent energy companies, new independent companies, cooperatives, farmer initiatives). The influence of energy market liberalisation (influenced by EU directives) on wind power

policies and on the relation between the government, the energy sector, and (other) wind project developers, is also addressed.

Second, the *spatial planning domain* is examined in its implications for the implementation of wind power. The planning system and planning policies for wind power set the parameters for implementation at the local level. We address the general characteristics and changes in the spatial planning system for each case. The planning system involves rules for decisions on land-use (siting) and project development at the local level. It stipulates the role of different levels of government in deciding on local land-use. Next, planning policies for wind power are addressed and analysed to establish how they have worked out in practice. Furthermore, the approach in local project planning is considered, both in relation to institutionalised ways of local land-use planning and the avenues these have offered for participation, as well as in relation to the types of developers involved in wind projects and their (general) approaches in project planning and development. For instance, a locally based cooperative is likely to plan and develop a project in a different manner than a subsidiary from a large energy company.

Third, we address the extent to which the *domain of environmental policy* has affected wind power developments. Various environmental regulations set restrictions on wind power development, and these are in part based on EU directives. More generally, the salience of environmental policy relates to a rise of environmental concern in society and politics, and we address how these concerns have become institutionalised in society and politics and how that has affected the commitment to wind power development.

We conclude with placing the development in the three domains next to each other, addressing whether efforts at a more integrated policy approach are discernible over time. Here we also assess what conditions have been considered important for successful implementation in policies throughout the years (policy framing).

Policy communities

Against the backdrop of the historical analysis of the policy domains, we focus on how actors have cooperated in their efforts to mobilise support for wind power. We do not investigate specific projects, and cannot single out all persons involved in or affected by wind power projects in each case. Still, we can discuss how stakeholders and their knowledge resources have ‘assembled’ over time around the issue of wind power, and attempted to influence policy and implementation, by inquiring into the process of wind energy policy community formation (table 3.6).

We start with the initial formation of a network around wind power and describe how it has developed and consolidated. Our focus is on which actors (e.g. grass roots initiatives, conventional energy companies) or networks have constituted this policy community, what their position has been, whether separate networks evolved within this community, and how things changed over time. For instance, we address the rise, composition and position of wind power branch organisations representing (partial) interests. We also assess how government has facilitated network formation. Both the relationships among stakeholders and those between stakeholders and the government are addressed.

In addition, we inquire into the position of ‘conditional supporters’, who support wind power development if certain criteria are taken into account - e.g. nature protection or landscape preservation organisations. Finally, the rise of opponents in local action groups against specific projects, as well as larger networks, are addressed, including their efforts to mobilise support against wind power.

Table 3.6 Research questions on policy community formation

3. How and to what extent has a policy community around wind power been able to mobilise support at various levels, to influence policy-making and implementation?

- Which actors have been involved in what manner?
 - How and to what extent has a policy community around wind power consolidated?
 - How has government facilitated the formation of a policy community?
 - How have stakeholders cooperated and pooled resources to overcome problems and mobilise support?
 - How has this policy community managed to mobilise support for wind power development at the level of policy-making and at the level of implementation locally?
 - How have conditional supporters been involved?
 - How have (grass roots) networks against wind power developed and managed to mobilise support?
-

Institutional capacity building

When all the questions and sub-questions have been answered, we can assess patterns of support mobilisation for wind power implementation in and through policy-making, project planning and implementation practices. Institutionalising capacities for wind power implementation entails mobilising actors and their knowledge resources in order to build social acceptance and commitment to wind power developments. We relate these institutional capacities to implementation achievements (table 3.7).

We furthermore discuss how early developments and policy choices have affected later options and how institutional arrangements

have been adopted or adapted to improve conditions for wind power implementation.

Table 3.7 Research questions on institutional capacity building

4. How has institutional capacity building for wind power implementation taken place?

- How has support been mobilised throughout the years (by whom, how, on what levels)?
- How has mobilisation capacity developed? How/to what extent has a variety of stakeholders and their knowledge resources been involved in national policy processes and local decision-making on wind power?
- To what extent have early (policy) choices constrained later options, and to what extent have institutional arrangements been adapted to create positive conditions for wind power development?

3.3.2 Cross-comparison and conclusions

We compare how differences in institutional capacity building relate to differences in implementation (table 3.8). Case-specific influences that have affected implementation achievements are accounted for as well. To this is added an analysis of perspectives among key stakeholders across the three cases, on the basis of the stories as well as the Q sort (see section 3.4). We relate these different perspectives, as well as the contentious issues that they reveal when set against each other, to diverging historical experiences and implementation achievements.

Furthermore, we assess whether our comparative findings confirm the relationship between institutional capacity building and implementation achievements. Finally, we discuss to what extent our findings can be generalised beyond the level of the three cases.

Table 3.8 Research questions on cross-case comparison

5. How can we explain the diverging outcomes of wind power implementation with reference to institutional capacity building?

- What are differences and similarities between the cases in institutional capacity building for wind power?
- To what extent do the differences in institutional capacity building in the three geographical entities provide an explanation for differences in implementation?
- What case-specific (non-)institutional influences have affected diverging implementation achievements?
- To what extent has our conceptual framework on policy processes and model of institutional capacity building for wind power proved useful to arrive at a better understanding of outcomes?
- To what extent can we generalise (parts of) our conclusions beyond the level of our three cases?

3.4 Data and analysis

Literature and document study

Data include existing (case) studies on wind power development, literature on energy policy, spatial planning, environmental policy, policy documents, policy evaluation reports, stakeholder documents, interviews and Q sorts (explained below). On the basis of this literature, reports, and policy documents, an account of important events and developments is structured chronologically around the relevant policy domains. Policy documents from the national and state ministries that are responsible for wind power policy from 1990 onwards have been collected and analysed. Documents from other ministries and policy evaluation reports were used as far as they were relevant for wind power development.

Interviews

For each case an overview was made of the relevant types of stakeholders. From each stakeholder-group, we interviewed one or more respondents (overviews of the respondents are included in annex B). The interview was semi-structured. A topic list was sent to respondents beforehand if they wished so. The main question we started with was an open question: “Do you/does your organisation consider wind power implementation successful or not, and for what reasons?” In each case we interviewed fifteen to twenty people. In addition, we collected documents pertaining to each individual group of stakeholders, including Internet sources. For instance, when interviewing someone from a wind power cooperative, material from this and other cooperatives was studied. The interviews were useful for informational purposes. Next, we were interested to see what structural conditions and issues respondents referred to, and what arguments they held about these conditions and issues. Although a respondent cannot be regarded as representative of a whole stakeholder-group, he or she will refer to conditions that others within this stakeholder group are faced with as well. The respondent of a wind power cooperative refers to conditions that all cooperatives have to deal with, e.g. the incumbent planning institutions or the susceptibility of the issue of wind power to local political games. The intention was to separate arguments that refer to more general conditions from those referring to the particularities of the situational context of the respondent.

Interview analysis

The transcribed interview reports were analysed in order to identify arguments about wind power implementation. We used codes for this, and, following Miles and Huberman (1994), we started with some general themes, which were developed on the basis of literature study and our research interests. These themes received descriptive codes that could be attributed to parts of texts (stakeholder documents and interview reports). We were interested in arguments that refer to the conditions for wind power implementation, that involved opinions on if and how wind power implementation should proceed. These conditions can be understood in terms of economic and financial conditions, planning procedures, the planning system, environmental awareness, environmental issues, decision-making processes, ownership, the role of government, relations among actors, cultural values, politics etc.

Next to the descriptive codes, we developed interpretative codes that describe *how* stakeholders referred to conditions for wind power developments. In this way, we built an inventory of arguments (annex A). This inductively developed set of codes was largely developed during the first case. Most arguments were general in the sense that they could appear in different contexts and could be found in all three cases. However, the second and third case we identified some new arguments as well. All arguments received a code and in each text a variety of codes could be attributed.

Each respondent referred to various arguments. These were all listed initially, but later on we reduced the data set by looking at how prominently various arguments figured, taking into account an actor's involvement, role and formal interest in wind power, and the analysis of other documents of the stakeholder group. A comprehensive coding overview was made, including both the coded as well as other arguments from each respondent, sometimes supplemented with quotes from stakeholder documents.¹ The most salient aspects in the arguments of various stakeholders were compared, and then we looked for similarities in combinations of codes, in order to group stakeholders on the basis of shared arguments.

This resulted in the construction of several stories that reflect differences in perspectives between stakeholders. Each story was constructed around the following topics: the aim of implementing wind power, the impact of liberalising energy markets, national decision-making, sub-national decision-making, planning issues, types of developers, ownership and involvement in wind schemes, and conflict

¹ For those interested, these overviews are available by the author.

issues. The stories necessarily remained rough. Some stakeholders ‘fitted’ very well within a story, others partly and some stakeholders did not fit at all.

Apart from this, we applied another method to group patterns of opinions among the stakeholders, however this time not on the level of the separate cases, but across the cases. This Q sort analysis, discussed in the next section, was done after the stories were constructed.

Q methodology

The analysis of interviews and stakeholder documents was accompanied by a Q sort analysis. The Q methodology is a quantitative technique for clarifying, evaluating and comparing human subjectivity (Robbins and Krueger, 2000). It is increasingly applied in fields where the systematic influence of value patterns on perspectives and assessments are significant - and a research topic in itself. It involves various fields of psychology, for example general studies of types of personality and social behaviour (Asendorpf and Van Aken, 1999; Wampler *et al*, 2004), but also specialised areas such as differences in psychological traits across gender (Oswald and Harvey, 2003; Snelling, 2004). The Q methodology is increasingly being adopted in social and political science, in attempts to uncover patterns of perspectives that are situated within people’s subjectivity (Devilee, 2002; Dryzek and Berejikian, 1993; Ellis, 2004; Van Eeten, 2001; Webler *et al*, 2001). For instance, it has been adopted to identify views regarding citizenship, the public interest, environmental policy, and the quality of participation processes (Webler *et al*, 2001; Wolsink, 2004). Recently, Ellis *et al* (2006) have used the Q method in a very interesting study on the values of both supporters and opponents of an offshore wind farm proposal in Northern Ireland.

Q sort is a reconstructive methodology, its merit lying in the fact that “by allowing the categories of the analysis to be manipulated by respondents, the researcher loses the exclusive power to signify the reality of the researched” (Robbins and Krueger, 2000:645). The Q method differs from survey methods in that the latter ask respondents to express views on isolated statements, while the Q method identifies respondents’ statements in the context of their valuation of all statements presented. An important initial assumption behind the Q method is that subjectivity is communicated and hence observable. Subjectivity is defined as the internal frame of reference that a person calls upon to make sense of the world around him or her self, a *self-referent* perspective about a perceived specific situation (Webler *et al*, 2001). In addition, the Q method assumes that a limited number of distinct perspectives or viewpoints exist on any topic.

We adopted this method to highlight the differences in views regarding how, whether and by whom wind power implementation should be effected. We briefly touch on the steps undertaken in Q sort, and elaborate this in chapter 7 that presents the results as well. First, a well-structured Q sample was developed that includes a wide range of existing opinions. In our case, we developed a set of 60 statements or opinions. The statements were presented to the respondents prior to the interview. Respondents were asked to rank-order the statements according to a forced normal distribution with 12 positions from most to least ‘according to my point of view’. In other words, they were asked to sort the statements in relation to each other. The analysis of the Q sort was carried out with the help of PQMETHOD2.11 (Schmolck, 2002). Using a principal component analysis, factors were revealed. Four factors resulted from this analysis. Respondents with similar views shared the same factor (pattern of subjectivity or perspective).

3.5 Reliability and validity

Case studies have received criticism for their supposed lack of reliability, and for being prone to bias. *Reliability* involves the ability to demonstrate that the operations of a study can be repeated, with similar results (Yin, 1994). A coherent research design and a systematic organisation of the study as elaborated above are important to achieve reliability. Furthermore, we kept a retrievable database, separate from the case descriptions, so that the (analysed) data did not get mixed up with the writing. Digital annotated bibliographies and coding formats and overviews enabled us to get back to earlier analyses in the course of time, and to subject them to review when, after the first case, parts of the research strategy were altered.

In terms of bias, the main issue when acknowledging that social scientific research has interpretive dimensions is to be explicit about the choices made and the steps followed during the process of analysis and interpretation. Since we aim at understanding as well as explaining the outcomes, *internal validity* is important. This means that causal relationships are established between conditions and phenomena, as we did in our conceptual framework and model in the previous chapter (figure 2.2 and 2.3).

External validity is about establishing the domain to which the study’s findings can be generalised. We selected our cases from within the European Union, and in the final chapter we will discuss how our findings are relevant when considering wind power implementation achievements in other geographical units within the EU. The research

design allows us to generalise, because of the use of *replication logic*, which means that the cases have been studied in a similar manner. Case study research has been criticised for offering a poor basis for generalisation. However, a distinction should be made between survey research that aims at statistical generalisation, and case study research that aims at *analytical generalisation*. Analytical generalisation involves the aim to generalise a particular set of results to some broader theory. We attempt at analytical generalisation by concluding on the relative influence and salience of multiple interrelated institutional variables on processes of wind power implementation.

To enhance *construct validity*, it is important to have proper operational measures for the concepts under study and clear definitions. Through triangulation or converging lines of inquiry, we have multiple sources of evidence. This strengthens the (construct) validity of our findings. We apply a multi-method approach, which means that conclusions drawn from analysing one source are supported by conclusions from analysing other sources (Swanborn, 1994; Yin, 1994). The historical policy domain accounts and the analyses on policy community formation are based on multiple sources and methods of analysis (table 3.9). For the identification of stakeholder perspectives, we have included both an analysis of interviews with coded arguments as well as a Q sort analysis.

Eventually we confront findings and conclusions with starting assumptions about the relation between institutional capacity building and implementation of wind power. At this point, care must be taken in explicating the linkages between the questions asked, the data collected and the conclusions drawn (Yin, 1994:78). We need to stay aware of the impact of other factors and possible rival explanations. However, since our investigation addresses the broad context of wind power developments, the chance of missing important other influences is diminished.

Table 3.9 Data, analyses and purposes

Type of data	Analysis	For which parts of the case studies
<i>Literature</i>	- <i>Literature study</i>	Policy domains; policy community formation; policy frames
<i>Policy documents</i>	- <i>Document study</i> - <i>Policy analysis</i>	Policy domains; policy community formation; policy frames
<i>Stakeholder documents</i>	- <i>Document study</i> - <i>Analysis of arguments</i>	Policy domains; policy community formation; stakeholder arguments and stories; relations among actors
<i>Interviews</i>	- <i>Information</i> - <i>Analysis of arguments</i>	Policy domains; policy community formation; stakeholder perspectives, stories; relations among actors
<i>Q sample</i>	- <i>Q sort</i>	Stakeholder perspectives

4 Wind energy in the Netherlands

This chapter is an adapted version of an article accepted for publication in Environmental Politics (Breukers and Wolsink, forthcoming)

4.1 Introduction

The first case study involves the Netherlands. This densely populated country borders Belgium to the south and Germany to the east and is flanked to the north and west by the North Sea (map 4.1).

Map 4.1 The Netherlands and its provinces



The coastal areas in particular provide good wind velocities. In 2003, 1.4 % of Dutch electricity generation was from onshore wind power (IEA, 2005).

The 1956 Suez Crisis confronted the Dutch with their dependence on a single energy source, petroleum, which was at that time replacing coal as the most important fossil fuel (Verbong *et al*, 2001). The importance of diversification and alternative (non-fossil) sources of energy was acknowledged for the first time. However, worries subsided with the natural gas discoveries - e.g. in Groningen in 1959, and with the high expectations of nuclear energy to meet future demand.

In the seventies, locally based environmentally inspired initiatives as well as the energy sector explored the options of wind power development, albeit on separate tracks. The former lacked government support while the latter lacked a proper strategy, and expectations failed to materialise. Consequently, implementation has lagged for many years. Whereas the traditional windmills are nowadays celebrated as part of the Dutch historical landscape, modern turbines have met with opposition from early onwards. The following section will throw a first light on how the Dutch achievements are appreciated by the various stakeholders themselves.

4.2 Stories on wind power

Most respondents (annex B) were interviewed in 2002, a year of uncertainty because new policies were being prepared. Moreover, the fall of the second purple cabinet (a coalition of the Labour Party PvdA, the centre-right VVD and the liberal democrats D66) in April 2002 delayed the adoption of these policies. During the interviews, proponents of wind power expressed their strong dissatisfaction with the situation at that time. After 2003, the new financial incentives have worked out quite positively for project developers, but this is not reflected in their stories. Three stories (table 4.1, 4.2 and 4.3) have been constructed, on the basis of interviews, stakeholder documents and Internet resources.

Story 1: Wind power needs to catch up²

The respondents of this first story (table 4.1) did not agree on all issues. Where respondents had a more outspoken or different opinion than others, this is indicated with an additional reference to the respondent.

² Written sources: DE Koepel, 2002; Kennemerwind, 1999; Nuon, 2003.

“Wind power development is important in the struggle against climate change, environmental pollution and resource depletion. Compared to Germany, in both Dutch society and politics the sense of urgency is lacking. If you do not prioritise environmental goals, nothing will happen, and this is what we have seen in the Netherlands.

The liberalisation of the energy market ended the close partnership between the energy companies and the economic ministry and improved the position of other developers. In a liberalised market, support for further wind power implementation remains crucial. *Nuon*: “In the light of liberalisation we should oblige distributors to supply a certain percentage from renewables. In combination with a certificate system we could then have an EU-wide support system.”

The current target of 1500 MW installed capacity by 2010 looks ambitious, but it is not. This target dates from the time when 250 kW turbines were built. After a swift early start, we fell behind in Europe, which has negatively affected industry and research. We needed a simple and predictable long-term financing framework that rewards production of renewable energy. We needed a government that performs as a catalyst in the process of market development. We needed a government that consults the wind power sector before deciding on policies. The Dutch government has failed in all these respects. Moreover, the different government departments coordinate too little. Inconsistent policies have raised accusations of an untrustworthy government. Investor security has been undermined many times. At present, the government is preparing a kind of feed-in tariff policy, so that will hopefully improve the situation. There have been calls for a feed-in tariff system for many years. *Nuon*: “The new policies will provide support for renewable electricity that is generated in the Netherlands which will harm energy companies that have wind farms abroad which also produce partly for the Dutch market.”

Spatial planning is a bottleneck. Municipalities and provinces should take responsibility and we should counter the attitude that everyone likes wind power, but prefers not to have it installed near where they reside. Municipalities should be given more assistance and financial compensation could furthermore help to ensure local benefits. *Nuon*: “We should put more pressure on municipalities, for instance by requiring each of them to make space for two turbines. Exerting pressure worked when we needed to improve our dikes, so it is just a matter of what is prioritised as representing a national interest.”

It is too easy to halt a wind project in the Netherlands. One single person can ruin a whole project. The permitting procedures are lengthy, complex and involve too many moments when people can

participate. If the opportunities for the public to comment were reduced to just one moment, a lot of time and effort would be saved.

Table 4.1 Actors and coded arguments for story 1

Story 1: Wind power needs to catch up

Respondents:

- Pawex (branch of private wind turbine operators)
- ECN (energy research institute)
- Greenpeace (national environmental organisation)
- FME (turbine industry branch)
- Zeeuwind Cooperative (cooperative)
- WEOM (private wind developer)
- VWNH (branch of farmer wind developers)
- Nuon (energy sector-developer)
- EnergieNed (energy sector branch)

Respondents partly:

- VROM (ministry for environment and planning)
- Novem (government agency that executes renewables policies)
- Wieringermeer municipality
- Province of North-Holland

Stakeholders generally: wind project developers; wind cooperatives; Friends of the Earth, World Nature Fund, other wind branches (Newin, Wind Koepel, DE Koepel; NWEA)

Coded arguments^a: remar 9; proced 7; pragpart 7; locfin 5; relsec 5; onevoic 5; natpol 4; prienv 4; prienv+; admcult 3; nimby 4; localres 3; report 2; oblires 2; realgoa 2; locexp; bottup; govnot; careplan

^a numbers indicate how often each argument was found

Wieringermeer Municipality: “The national government and developers paid too little attention to local planning difficulties in the beginning years. Top-down designation of sites for wind power development is not a solution; it does not fit with Dutch culture. Wind power needs to be carried by the local residents; it should be organised bottom-up, so that provinces and the government can subsequently support what is happening on a local level.”

Zeeuwind: “Whatever you do, you cannot get around the need to talk to the people locally and you will always have to reckon with local politics. Without the involvement and participation of residents, landowners and municipalities, you cannot develop successful projects. Offering financial co-ownership is a good thing and it helps to create local acceptance, for then you will have a local economic benefit. Energy companies never do such a thing.”

Greenpeace: “We should have more wind projects developed in cooperative arrangements between developers and local stakeholders.”

Nuon; EnergieNed: “Cooperatives have had their day. They are useful in the pioneering phase, when individual commitment and enthusiasm is still important. Wind power has reached a stage where very large investments are involved and at that point a cooperative is no longer suitable. Everyone is now after profit and any idealism is very much subordinate to that.”

WEOM: “It is important to engage with relevant stakeholder through information dissemination, but participation is not a solution, nor is financial participation because you can offer little. Moreover, opponents will not change their mind if you offer them some money.”

Within the wind energy sector, there has been too little cooperation. It has therefore never accomplished a united front to fire back at government policy. Only recently has the wind energy sector started to join forces.

National nature protection organisations generally support wind power, but at the local level a developer often finds himself confronted with some local bird group or even a single person. Local politics, personal and emotional factors play an important role in determining the success or failure of a project. More generally, people are afraid of what is new. At both the provincial and the municipal level you meet with nimbyism. There will always be opposition, but at a certain point one has to choose for the collective good.

Opposition is increasing, and the main issue is ‘landscape pollution’. In addition, some scientists have declared war on wind power and they have good access to the media. We therefore need a strong branch organisation that can counterbalance all this mis-information, so that lay people understand why wind power works and why we need it.”

Story 2: Wind power: yes, but not at all costs³

“Wind power development is one of many spatial functions and one of many ways to combat climate change. Much more attention and support should be directed at energy efficiency. That is where the sense of urgency is lacking, we are not worrying because we have our gas resources. Liberalisation poses a threat to renewable energy sources, for it encourages an emphasis on profit, instead of on the public interest. The economic ministry is unaware of provincial and municipal issues and blindly sticks to targets of installed capacity instead of looking at what is actually realistic.

³ Written sources: Miliefederatie Drenthe, 2000; Provincie Noord-Holland, 2000; SNM, 2000.

Wind power too often looks like a losing proposition for municipalities. However, top-down designation of sites would never help in creating a supportive basis, nor would it lead to any increased awareness or sense of urgency about environmental, climate change and energy problems. In Germany, the role of local planning has been sacrificed for the sake of wind energy. Here, municipalities should keep the option to refuse wind turbines when landscape values are at risk.

Table 4.2 Actors and coded arguments of story 2

Story 2: Wind power: yes, but not at all costs
Respondents: - Wadden Association (nature and landscape protection organisation)
Respondents Partly: - Province of North-Holland - VROM (ministry of environment and planning)
Stakeholders generally: Association for Nature and Environment (SNM); Provincial Environmental Federations (SNM-branches); Bird Protection Organisation
Coded arguments: pragpart 3; careplan 2; remar 2; realgoa 2; admcult; nimby, localres; prienv; natprot

Before a developer can build a wind project, permits need to be acquired, as is the case for any building activity. There is nothing wrong with that. Why should we make wind projects subject to fewer rules and environmental criteria? Procedures ensure legal protection for both the initiator and those who think they are harmed by the development. And yes, that takes time, which is normal. Usually, project developers make a plan and nature protection organisations can only react afterwards. However, earlier involvement would save a lot of time later in the process.

Nature and landscape protection organisations have indicated areas that are least likely to harm nature and environmental interests, and within these areas the targets can easily be attained. Planning of wind farms must be done carefully. Wind projects are best built at industrial sites, in harbour areas and near roads and railways. They do not belong in or near nature and important bird areas, or near valued landscapes. It is best to cluster turbines and have a few larger sites instead of lot of small wind farms. In the province of Friesland, too many solitary turbines have resulted in a messy landscape and undermined social acceptance.

Greenpeace simply aims at as high a target as possible, while the nature and landscape protection organisations look at what is realistic.”

Story 3: Dare to oppose the wind lobby

“Wind turbines are useless political symbols of intimidating dimensions. Government and politics present wind turbines as the solution for a cleaner environment and climate change. The government continues to make investments in wind power attractive, and millions of public money are wasted. The government never made any proper cost-benefit analysis. Opponents did, and their financial analysis should help us to get rid of wind power. We should be careful not to invest too little in conventional capacity. We are building turbines and importing nuclear energy, the wrong way to go. The government is untrustworthy, there is no fair decision-making process and all information comes from biased parties that live off wind power. Emotions have become dominant in the assessment of climate change, instead of scientific facts. Wind turbines have a very low yield and deliver a marginal contribution to the energy supply and hence hardly help to reduce CO₂ emissions. As an alternative to fossil fuels, wind power is not even worth mentioning. Wind turbines spoil the sparse collective open space. They change cultural historic landscapes: where horizons used to be marked by churches, cloisters or forests, now wind turbines dominate. The province of Friesland, in particular, has been hit hard; everywhere turbines have disrupted the landscape. Wind turbines have many unwanted side effects on the everyday environment of many people, and on landscape and nature. Villages face internal conflicts, between farmers who want to make a lot of money and the rest of the community.

Table 4.3 Actors and coded arguments of story 3

Story 3: Dare to counter the wind lobby

Respondents:
-Windhoek foundation (local anti-wind initiative)

Respondents Partly:
- Wadden Association (nature and landscape protection organisation)

Stakeholders generally: citizen initiatives against wind projects (more than 45), National Critical Platform Wind Power; some local nature protection groups; some local political parties

Coded arguments: nodare; locexp; landsca; partbeg; bigbus

Lower levels of government often hide behind national energy policy; there is no local energy policy or nature policy that has been thought out independently. This impedes a fair and open discussion about the pros and cons locally. Off the record, individual local officials admit that they are opposed, but professionally they support it. People are afraid of being branded as anti-environmentalist when they oppose wind turbines. Furthermore, local people often have to learn from their local newspaper

that a wind farm is being planned in their vicinity. Citizen initiatives that oppose wind power are not always taken seriously and that is frustrating. Local citizens protesting against wind farms have at times been threatened or offered money if they stop complaining.

Valued landscapes, so far kept free of industrial activity, are now being degraded with wind turbines. There is no real environmental motive behind developing wind projects. Money is the driving force.

It is not very difficult to start procedures against a wind project. The environmental assessment reports often contain mistakes, about noise emissions, safety, birds and other impacts. The procedures and legal options are in fact there, but then you need either a lot of money or a lot of time to investigate it. More people are becoming aware of the negative aspects of wind farms. As turbines are getting larger, resistance is bound to increase; people don't want these 80-meter high towers. People from the countryside value the landscape differently than urban people. In Britain, landscape values are still important, and the Country Guardians inspire Dutch initiatives.

Local anti-wind initiatives usually do not cooperate with provincial environmental federations. In fact, most environmental organisations lack the courage to make a statement against wind power.”

Areas of contention

Roughly, the three stories represent supporters, conditional supporters and opponents of wind power development respectively. Within the *Wind power needs to catch up*-story, differences of opinion are discernible. A first difference is that Nuon argued for a quota obligation for distributors, while many other respondents were more supportive of a feed-in tariff system. A second difference concerns local planning for wind power. Some respondents argued for top-down measures, while others (a municipality and a cooperative) emphasised the need to build local support. A third difference concerns the motivation (environmental or commercial) to develop wind projects and the kind of project development approach that would be best (cooperative or corporate).

As for the differences between the stories, a first tension relates to how government has promoted wind power development. The proponents' story reproaches government for insufficiently prioritising wind power. The *Wind power but not at all cost*-story argues that wind power has been given preferential treatment, at the expense of energy efficiency measures. The *Dare to oppose*-story is even more critical, arguing that all support for wind power is a waste of money. Second, the landscape impact is a contested issue. Both story 2 (*Wind power but not at all cost*) and 3 (*Dare to oppose the wind lobby*) refer to the disruptive effects of

wind turbines in the province of Friesland. To prevent further damage, story 2 argues for stronger criteria that need to be taken into account and for early involvement of environmental and landscape protection organisations. Story 3 argues for putting a stop to any further wind power development.

A third issue relates to the involvement of relevant stakeholders in project planning. The *Wind power but not at all cost*-story argues for earlier involvement of relevant stakeholders, whereas the *Wind power needs to catch up*-story only partly regards this as a good idea. Story 3 criticises the late involvement of the local community when a wind project is planned. Fourth, the stories reveal diverging opinions concerning local planning and the role of the municipality. Some respondents of the first *Wind power needs to catch up*-story argued for a shortening of the permitting procedures or for requiring municipalities to actively designate sites for wind power development. The second story regards such proposals as unacceptable. It argues that the planning system and its procedures are crucial to guarantee that various interests and rights are taken into account.

A fifth issue concerns the diverging understandings of local opposition. Some respondents of the *Wind power needs to catch up*-story argued for taking local concerns seriously, but the overall tendency was to accuse opponents of nimbyism, fear of change, or of being influenced by media reports that discredit wind power. The *Dare to oppose*-story argues that wind power proponents are urban based and do not understand the value that people from the countryside attach to their cultural historic landscapes. The following sections place the tensions within and between the stories in the broader historical institutional context of wind power developments in the Netherlands.

4.3 Domains: energy, planning and environment

4.3.1 Energy domain

Beginning years: one-sided focus

Until 1973, energy production and supply in the Netherlands was regarded an industry like any other, not in need of specific policy. However, the 1973 energy crisis revealed the vulnerability to international oil price-rises. Worries on security of supply prompted the Ministry of Economic Affairs (EZ) to publish its first White Paper on Energy (EZ, 1974). It emphasised the need for energy saving and

diversification of the energy resource basis. Renewable energy sources were mentioned as one option for future diversification of energy resources, but not considered to play a role of any significance before 1985. The focus was on natural gas, hard coal and nuclear power. In the years that followed, the economic ministry (EZ) devised energy policy in close collaboration with the organisation of cooperating power producers (NV SEP⁴).

As for wind power development, only large-scale technology and application were considered potentially interesting. This is illustrated by a report commissioned by EZ in the early seventies, which described small-scale wind farms as still encompassing twenty to thirty turbines (Verbong *et al.*, 2001).

A lack of commitment

From 1976 to 1987, two successive research and development programmes for wind power were adopted (NOW I and II⁵). Both programmes aimed at the development of a turbine manufacturing industry. R&D support went largely to the development of multi-megawatt turbines by companies from aerospace technology (Kamp, 2002). In 1985, company Stork built a 1.1 MW turbine, financed by both EZ and the European Commission. It stood idle most of its lifetime (De Jong *et al.*, 2005).

As for the implementation of wind power, the energy producing companies were attributed a central role. SEP embarked on the development of the first demonstration wind farm (18 turbines, 5.4 MW) in Sexbierum, a village in the province of Friesland, for which EZ paid half of the costs. Local opposition delayed the obtaining of building permission. Moreover, when the turbines started operation in 1988, they did not perform as expected. The prototypes had not been tested properly and witnessed technical problems (De Jong *et al.*, 2005; Verbong, 1999).

The failure of the Sexbierum project was related to a lack of commitment from the side of SEP and the resulting difficult cooperation with the network of research institutes and turbine manufacturers (Interview with ECN, 2002; Verbong *et al.*, 2001). The few large manufacturers went out of business after bad experiences with the SEP wind farm. Turbine development had proven problematic, risky and too expensive for them (Kamp *et al.*, 2004). In its ambition to launch an

⁴ Samenwerkende Energie Producenten (SEP)

⁵ Nationaal Onderzoeksprogramma Windenergie (NOW I) and Nationaal Ontwikkelings Programma Windenergie (NOW II)

internationally competitive Dutch turbine industry, EZ had underestimated the difficulties involved in technology development. It had subsidised turbines of a magnitude that the existing technology could not yet provide for. Moreover, because of this large-scale emphasis, little technological learning through the development of smaller turbines had taken place (Kamp, 2002; Verbong *et al*, 2001).

Small-scale potential remains untapped

From the late seventies onwards, people from the anti-nuclear and environmental movement became increasingly active in wind turbine and project development. However, EZ and the energy companies did not take these small-scale and bottom-up initiatives seriously as potential triggers for wind power development. Instead, EZ facilitated a separate network consisting of the established energy sector, newly created EZ-related agencies and research institutes. The Dutch Organisation for Energy and the Environment (Novem⁶) is the result of a merger of various EZ-agencies in 1987.

Small-scale independent initiatives faced difficulties in these years. Turbine manufacturers received little subsidy. The buyers of these machines - e.g. advocates of renewable energy and farmers - could apply for support from a general investment premium of 30 to 35 %, which was generally available for a broad range of investments. Another way to run a feasible wind project was by using the electricity in one's own company or farm (Verbong, 1999). These small-scale developers were not entitled to any additional investment subsidy until 1986. The remunerations paid for wind-generated electricity were generally low. Anti-nuclear groups and environmental organisations criticised the narrow policy focus, and called for a feed-in tariff system, but their calls were without effect (Verbong *et al*, 2001).

The generally declining economic situation in the eighties prompted the centre-right government - consisting of the Christian Democrat CDA and the centre-right liberal VVD - that took office in 1982 to concentrate on economic growth and employment. Increased energy use and emissions were taken for granted as long as economic growth was safeguarded. When oil and gas prices stabilised at a relatively low level in 1985, enthusiasm for energy efficiency measures and renewables further declined. (Verbong *et al*, 2001). In 1981, government had initiated a Broad Public Discussion on nuclear power. However, although the outcome showed society's disapproval, the government still decided to build three nuclear reactors. It was only after the Chernobyl

⁶ Nederlandse Organisatie voor Energie en Milieu (Novem)

disaster in 1986 that these plans were eventually abandoned. In the years that followed, people from the anti-nuclear movement started to promote the model of wind cooperatives, and several of these were established between 1986 and 1992.

Efforts to trigger installed capacity

In 1986, the Integrated Wind Energy Programme (IPW)⁷ was adopted. The aim was to reach 100 to 150 MW installed capacity by 1990 and to have cost-effective wind turbines on the market by 1991. For 2000, the target of 1000 MW installed capacity was set. Until 1991, an equivalent of 60 million Euro was available. Investment subsidies were granted for each installed kW, amounting to an equivalent of 300 Euro/kW in 1986 and 1987 (De Jong *et al*, 2005; Verbong, 1999).

As the large-scale oriented manufacturers had stopped producing wind turbines, the (former) small-scale manufacturers became the centre of attention. They faced new opportunities for funding but support was conditional: only when they used input from the research institutes, could they apply for higher R&D subsidies. The users or buyers could apply for the IPW investment subsidy that was based on generator capacity of the turbine and on how technically advanced it was (Kamp, 2002). Pressure on the manufacturers was twofold. Instead of the trial-and-error learning process that manufacturers were used to, they were now required to use knowledge provided by research institutes. Second, they had to upscale the designs, to arrive at cost-effective turbines, instead of 'simply' producing ones that worked (Kamp, 2002). Most manufacturers changed their practices to be eligible for subsidies and to meet the demands of energy companies for large turbines.

IPW did not result in an installed capacity level of 100 to 150 MW. Around 1990, little more than 50 MW had been installed. Moreover, in the late eighties, local opposition was increasing and finding sites became increasingly difficult (Verbong *et al*, 2001).

In 1991, the Wind Energy Application Programme (TWIN I)⁸ succeeded the IPW. The investment subsidy was replaced by a subsidy on the rotor swept area. Although this is a better indicator for how much energy is produced, it still did not encourage optimisation of turbine performances, as support for yield would have (Wolsink, 1996). To boost investment subsidies, manufacturers were encouraged to produce wind turbines with relatively large generators. These turbines did not

⁷ Integraal Programma Windenergie (IPW)

⁸ Toepassing Windenergie in Nederland (TWIN I)

perform well in terms of yield, compared to foreign-built turbines (Verbong *et al*, 2001:169).

The distributors: the new protagonists

Two changes in 1989 affected the setting for wind power development. First, the adoption of a new Electricity Act separated electricity production from distribution. A new actor appeared on stage: the power distribution company, which posed a considerable challenge to the monopolistic organisation of the electricity sector. Although their main task was supply, distributors were allowed to own facilities up to 25 MW, but via joint ventures (mainly co-generation schemes) they managed to control much larger facilities. In this manner, they became important players in decentralised energy generation (Slingerland, 1997). The distributors fed large amounts of electricity into the grid, partly generated with wind power. This made central planning by SEP obsolete and undermined the position of the energy producing companies (Hofman and Marquart, 2001).

The second change was brought about by the adoption of the first National Environmental Policy Plan (NMP⁹) in 1989, which gave environmental concerns more prominence in policy-making. The idea was to define objectives and arrive at implementation in cooperation with various *target groups*. The power sector was defined as a target group for emission reduction and voluntary agreements were made with the distributors. The first of these so-called Environmental Action Plans (MAPs¹⁰) was agreed on in 1991. To reduce CO₂ emissions, energy distributors were allowed to impose a 'MAP-levy' on electricity consumption. The resulting funds, supplemented with subsidies from the economic ministry, could be employed to promote sustainable measures like wind power development or energy efficiency. This attractive arrangement encouraged the distributors to take up wind power development.

Both the new Electricity Act and the MAPs paved the way for the distributors to build up a strong position in renewable energy. Where previously the energy producing companies had been the main beneficiaries of government subsidies for wind power development, now the distributors enjoyed this privileged position. EnergieNed, the branch of the distributors, replaced SEP as partner in the coalition with the economic ministry.

⁹ Nationaal Milieubeleidsplan (NMP)

¹⁰ Milieu Actie Plan (MAP)

Wind Plan, the second large project failure

Equipped with MAP funds and EZ funds, the distributors embarked upon the ambitious *Wind Plan*, which aimed at installing 250 MW wind capacity by 1995. Like SEP's project a decade ago, *Wind Plan* resulted in a failure, for various reasons. The manufacturers could not meet the technical demands of the distributors on a commercial basis. Moreover, because they did not cooperate among themselves, they were unable to jointly negotiate these demands with the distributors (Gipe, 1995; Interview with ECN, 2002). Furthermore, the distributors had problems in finding suitable locations. They lacked experience in dealing with local spatial planning and politics, and their top-down approach invoked local opposition (Wolsink, 1996). *Wind Plan* was terminated in 1993. This disappointing experience by no means signalled an end to the distributors' involvement in wind energy, because the MAP continued to offer them interesting financial opportunities.

As for the turbine manufacturers, difficult times were ahead. A reorganisation in 1991 had already reduced the number of companies from nine to three: Lagerwey, Nedwind and Windmaster (Kamp, 2002). The expectation that *Wind Plan* would boost the Dutch turbine industry had failed to materialise and EZ started to doubt the usefulness of continuing extensive support for this sector.

Around 1995, installed capacity amounted to 257 MW. The target of TWIN I, 400 MW installed capacity by 1996, was not attained, nor was any other goal (table 4.4) (Novem, 1992). For this reason, a TWIN II programme was adopted. Stated goals were the improvement of the price-performance relationship of turbines and the creation of an autonomous market. The programme also involved a National R&D Plan *Wind* to come to a better streamlining between research and industry and to reach higher efficiency in allocated funding (Novem, 1996). Cooperation between the Dutch wind industry and the research institutes improved in the years that followed, partly due to Novem (Van Kaam, 2001). However, it was too late to save the Dutch turbine industry.

Table 4.4 Overview of policy measures

Polices and Programmes		Period	Focus
National Wind Energy Research Programme	NOW I	1976-1981	R, D&D Large scale applications
National Wind Energy Development Programme	NOW II	1982-1987	R, D&D Large scale applications
Integrated Wind Energy Programme	IPW	1986-1990	Development of commercial turbines Large-scale application Subsidies on capital investment
Wind Energy Application Programme	TWIN I	1991-1994	Development of commercial turbines Large-scale application Subsidy on the rotor area
Subsidy Decision on Wind Energy (BSW) (until 1996)			
Wind Energy Application Programme	TWIN II	1996-2000	National R&D plan (NRW) Investment subsidy for demonstration Price-performance relationship of turbines Market creation
Environmental Action Plans	MAP I - III	1991-2001	Investment and production subsidies - managed by distributors Green Label System
Free Depreciation Scheme on Environmental Investments	VAMIL	1996-2003	Free/accelerated depreciation on equipment investments (fiscal incentive)
Green Funding		1996	Lower interest rates for loans
Green Investment Reduction Scheme	EIA	1997	Tax credit (fiscal incentive)
Energy Investment Regulation for Non-Profit and Special Sectors	EINP	1998	Subsidy on investment costs
CO ₂ reduction plan		1997	Investment subsidy
REB/Ecotax		1996	Tax on electricity and energy consumption
REB 36o		1996-2003	Option to provide production subsidy
REB 36i - Ecotax exemption		1999	Exemption for buyers of renewable electricity
Environmental Quality of Electricity Production	MEP	2002	Feed-in tariff, with full-load hour systematic

Manufacturing industry withers away

For the greater part, the Dutch turbine industry did not survive the nineties. Regardless of all direct funding and subsidizing since 1975, the home market for wind turbines remained small because domestic

implementation was lagging. The turbine manufacturers had difficulties in meeting the distributors' demand for large turbines. Moreover, this demand thwarted the development of reliable smaller prototypes that could have resulted in serial production. Furthermore, the EZ subsidy on nominal capacity of turbines instead of on performance of yield had prompted Dutch companies to make relatively heavy generators that were not competitive on the international market (Kamp *et al*, 2004). An exception was Lagerwey Company, which concentrated on smaller turbines and was quite successful for some time in selling these both at home and abroad (Verbong, 1999:253). However, generally, more and more turbines erected in the Dutch landscape were manufactured elsewhere. Danish companies like Micon and Vestas entered the Dutch domestic market, enjoying the same subsidies as the Dutch companies. Dutch manufacturers were taken over by foreign ones or went out of business altogether. In the late nineties, EZ decided to reduce support drastically. By 2000, Lagerwey - the company that had not adapted to the large-scale demands - was the only remaining Dutch manufacturer (Kamp, 2002). And in August 2003, this company was declared bankrupt and taken over by an American investment company.

Unequal opportunities

Although the MAP covenants (1991-2001) helped wind power to proceed beyond the demonstration stage, they favoured the distributors over independent initiatives (Agterbosch *et al*, 2004; Dinica, 2003). Independent (or non-energy sector) developers had no legal entitlement to MAP funds. Moreover, they had to negotiate the prices they received for wind-generated electricity with the distributors. The 1989 Electricity Act required distributors to purchase electricity from decentralised producers in the area where they had monopoly supply rights. However, the Act allowed them to set different arrangements for different sources and technologies, and the distributors could penalise generation from intermittent resources like wind power for 'supply uncertainty' (Dinica and Arentsen, 2001:44). Halfway into the 1990s, a fierce discussion about the remunerations erupted between the distributors and the Union of Private Wind Turbine Operators (Pawex). EnergieNed and Pawex could not agree and subsequently, Pawex had to negotiate the prices with each single distribution company. While some distributors agreed to pay a remuneration that was satisfying for Pawex, others did not. Annoyance about the powerful position of the distributors continued (Interview with Pawex, 2001). A few years later the remuneration would become obsolete in the light of new policy, with the introduction of a Green Label system - which is discussed below.

Generally, the distributors faced increasing criticism as it was unclear how they used the MAP funds. Against the wishes of EnergieNed, a legal framework for the MAP-levy was adopted in the Energy Distribution Act¹¹ in 1997 (De Jong *et al*, 2005). The execution of the MAP would no longer be voluntary, but a legal task, financed from public resources. The Dutch Auditor General subsequently investigated the second MAP of 1997, and criticised the performance of both distributors and the government. The economic ministry had proven unable to monitor the cashing and expenditures of MAP-funds by distributors, and the distributors were urged to provide more transparency about the execution of their tasks with regard to the MAP (Algemene Rekenkamer, 1999).

Liberalisation asks for new policies

The first two Energy White Papers (1974, 1978) had been published after the first and second oil crisis. The Third Energy White paper of 1995 addressed energy market liberalisation. It stated that support for renewables was to become compatible with the dynamics of the market and proposed a less interventionist role for government (EZ, 1995).

In the years that followed, two important policy changes took place. First, in 1995 the investment subsidy was terminated and in 1996 a fiscal supportive system for all renewables replaced the direct subsidies (table 4.4). This marked the end of intense support for industry and technology development. The new fiscal measures promoted investments in production capacity (MW) of renewable energy. First, the Free or Accelerated Depreciation Scheme on Environmental Investments (VAMIL) facilitated financing conditions for investors in renewables. The scheme applied to companies liable to pay income or corporation tax. It offered companies the option of accelerated depreciation on environmentally friendly equipment like wind turbines (until 2003). A company could depreciate the investment at an earlier stage, reducing its profit and tax payments initially but providing for an overall improved cash and interest status.

Second, the Green Investment Reduction Scheme (EIA) allowed companies investing in specified renewable energy applications to reduce their taxable profit by a percentage of the invested amount (ranging from 52 % for small to 40 % for larger investments). The EIA scheme did not apply to non-profit organisations (e.g. cooperatives) and ‘special sectors’ like distributors. Unfortunately for them, it took EZ two years to correct this by adopting the Energy Investment Regulation for the Non-Profit

¹¹ Wet Energie Distributie (WED)

and Special Sectors (EINP), involving a subsidy on investment costs, ranging from 18,5 % for smaller to 14 % for larger projects (Dinica, 2003).

Third, Green Funding provided fiscal incentives to invest in green projects. It enabled private persons to direct their savings toward green funds, while being exempted from income tax on the earned interest. Those investing in energy projects that qualified as 'green investments' could obtain loans against a reduced interest rate (1.5 % less) (Dinica and Arentsen, 2001).

In addition to these fiscal measures, the Regulatory Energy Tax (REB)¹² was introduced in 1996. As part of the greening of the tax system, this ecotax provided for a partial shift in taxation from income taxes to taxes on environmentally damaging activities. It imposed an annually increasing ecotax on electricity, natural gas and heating oil consumption; first for households, and later also for small business (EZ, 1999a). Distributors levied the ecotax and forwarded it to the tax authorities. In 1999, the REB 'zero-tariff' (article 36i) came into effect: producers of renewable energy, sellers of imported renewables, and consumers of renewable energy would be exempted from the ecotax. This fiscal part of the REB scheme aimed at stimulating demand for green electricity. Furthermore, REB article 36o stipulated that the distribution companies could subsidise renewable energy producers, as an incentive for further production of renewable electricity. These subsidies could be derived from ecotax revenues that the distribution companies had received from consumers of non-renewables (Van Sambeek and Van Thuijl, 2003).

The second major policy change was the 1998 Electricity Act, which separated power supply and (high voltage) grid control. Transport and distribution remained a monopoly with the economic ownership of the net resting with TenneT, and legal ownership with public shareholders, provinces and some large municipalities. Access to the grid was now open to all. Consumers would pay for transport of electricity, insurance of delivery and connection and metering (Scheepers *et al*, 2001). Energy producing companies switched from being publicly owned to private companies. After liberalisation, three of the four large privatised energy-producing companies in the Netherlands were taken over by foreign companies and their production level decreased. Energy imports rose from 11 % in 1998 to 19 % in 2000. The three largest electricity distribution companies - Essent, Nuon and Delta Nutsbedrijven - have amassed a large share in the total production

¹² Regulerende Energie Belasting (REB)

capacity. Since 1998, the growth of energy production by these companies has been in line with the increase in total demand and has amounted to over 30 % (Scheepers *et al*, 2001).

Opening up of the green electricity market

With the finalising of the MAP covenants (2001) and the ongoing liberalisation process, the close cooperation between EZ and the distributors diminished. Whereas the MAP had represented a joint undertaking between EnergieNed and the government, now the distributors increasingly developed their individual market strategies.

The distributors found a new arena through which to exert influence on energy policy, including wind power policy. This Platform for the Acceleration of Energy Liberalisation (PVE)¹³ was established in June 2000 with the mission to help create an efficient and rapid liberalisation of the energy market. The members financed the PVE and included EnergieNed, TenneT, Gasunie and EZ. Orientations for future policies were discussed and PVE's working group on Green Electricity lobbied for demand-led policies and a Green Certificate System (Reiche, 2002a). The acceleration of the liberalisation process, prepared by the PVE, had important implications for renewables. That market was the first to be opened up - for household consumers in July 2001.

The Green Label system, part of the final MAP (1997-2001), was the precursor to the Green Certificate system. Green Certificates provide proof that a given amount of electricity is generated using renewable sources. The Green Certificates system enabled trade in renewable energy in a market environment. The national grid company TenneT issued certificates and kept track of trade and redemption (Dinica, 2003).

In this increasingly (though still only partly) liberalised market, green electricity became an ever more interesting 'product' that could be marketed successfully. The REB scheme encouraged the demand for green electricity. The combination of tax exemptions and production subsidies enabled renewable energy producers to bridge the price gap between conventional and renewable electricity. Consequently, they could offer consumers green electricity for the same price as grey electricity. Around 2003, a million customers had opted for green electricity, although later on this number decreased somewhat (De Jong *et al*, 2005:152). Various new actors appeared on the stage, like foreign companies and resellers of energy.

¹³ Platform Versnelling Energieliberisering (PVE)

Unfulfilled expectations

Both the new policy measures and the effective liberalisation improved the position of independent wind power developers. The regional monopolies of the distribution companies were abolished, which allowed independent operators to sell their wind power to whomever they pleased. Their dependence on distributors decreased. Moreover, they were entitled to the same support as the distributors. Their involvement in project development increased.

For distributors that were tired of the difficulties involved in finding sites for wind power development, the REB offered a profitable alternative, namely the import and retail of renewable energy. In fact, this signalled the end of the success of the REB system. Instead of encouraging actual expansion in domestic generation of renewable energy, it turned out to result in rising imports of renewable energy. Another weakness of the REB scheme was that it did not provide long-term price certainty, since the tax authorities annually revised the ecotax. The green electricity market grew, but the expected increase in domestic generation capacity remained limited (Reijnders, 2002). By 2001, 480 MW had been installed, not even half of the 1000 MW-target that had been set in 1985 for 2000 (EZ, 2002; Van Kaam, 2001).

Again new policies

As tax revenues for the imported renewables were flowing out of the country, the government began to search for an alternative to the increasingly controversial REB system (EZ, 2002). In July 2003, the (Act on the) Environmental Quality of Electricity Production (MEP)¹⁴ was introduced, accompanied by a 50 %-limitation of the REB zero-tariff for renewables, and the abolition of the REB production subsidy (36o and 36i; table 4.4). Lower ecotax exemptions were designed to reduce leakage of taxes abroad, while maintaining sufficient consumption incentives for renewable electricity (Van Sambeek and Van Thuijl 2003:12). The MEP involves feed-in tariffs for domestic producers. The total level of support is calculated using the feed-in price and ecotax exemption; the feed-in prices are financed by an annual levy on all grid connections. The remuneration-period for wind power is equal to 18,000 full load hours, for a maximum period of ten years.

Even before its adoption, the MEP caused debate. Apart from criticism of the height of the remuneration tariffs for wind, the full load hour systematic raised questions. Wind turbine operators asserted that 850 kW turbines are likely to reach these 18,000 full load hours within

¹⁴ Milieukwaliteit Elektriciteitsproductie (MEP)

7.6 years (WindNieuws, 2003). This also depends on wind speeds, as in less windy areas the same turbine will enjoy a longer term of support than in areas with high wind speeds. After that period it could be more attractive for a turbine operator to apply anew for the MEP, for a renovated, upscaled or new turbine - before the end of the technical lifecycle of the first turbines. Another consequence could be that operators place (or replace) turbines with a generator that has a larger capacity than is technically optimal, in order to reach fewer full load hours a year, and hence lengthen the period of MEP (EZ, 2004). The full load hours systematic therefore discourages efforts to reach the best yield and could undermine a proper allocation and efficient use of the financial support. As such, the MEP contradicts the principle behind feed-in tariffs, which is to stimulate yield rather than capacity.

The positive element is that the MEP provides an improved longer-term security for investors compared to the REB. Moreover, regardless of the discussions around the MEP, the new financial incentives have encouraged both implementation and local ownership. Rising local ownership has ensured the recent sharp increase in installed capacity to 1,073 MW in 2004 (table 4.5). Farmers in particular have seized the opportunity and they have surpassed the distributors in terms of installed capacity (Agterbosch *et al*, 2004; WSH, 2005).

Table 4.5 Cumulative installed capacity levels (MW) and number of turbines

Year	1990	1995	2000	2001	2002	2003	2004
Installed Capacity (MW)	50	250	447	485	670	906	1,073
Number of Turbines	323	1,008	1,291	1,342	1,450	1,595	1,651

Source: CBS, 2005b

Increase in independent and locally owned projects

Before 1988, farmers were responsible for over two-thirds of the installed capacity. After 1989, the energy companies became dominant in project development. However, as a study by Agterbosch (2006) shows, their involvement in wind project development decreased significantly in the second half of the nineties. Farmer projects again were on the rise, a trend that has since continued (table 4.6). Other commercial independent initiatives also increased but to a lesser extent. Of the cooperatives, fourteen are still around and they were responsible for 36 MW installed capacity in 2001 (Agterbosch *et al*, 2004; Van Loenen, 2004).

Table 4.6 Types of project developers and percentages of installed capacity (August 2005)

Type of project developer	Percentage of installed capacity
Farmers	43 %
Energy companies	29 %
Project Developers	22 %
Cooperatives	6 %

Source: WSH, 2005

Discussion: improvements despite legacy

Initially, both EZ and the energy companies regarded wind power as unreliable and insignificant in comparison to nuclear energy. Ideas about wind power development were taken seriously insofar as they fitted within the incumbent framework of thinking about centralised and large-scale energy generation.

The flip side of the narrow policy focus was that the dominant actors - EZ and the energy companies - missed out on the knowledge and experiences of independent initiatives. They left a potential for technological learning, early market development and implementation untapped. Moreover, the energy sector-developers displayed a structural neglect of environmental aspects, spatial planning and local concerns, which undermined social acceptance.

The past decades have witnessed a complex amalgam of different and overlapping policies that ranged from direct subsidies (to the energy sector; to the turbine industry; for investments based on generator capacity) to voluntary agreements (MAPs), fiscal policies (fiscal investment support and incentives on the demand-side), towards a mix of fiscal measures and a partial feed-in-tariff system. This volatility diminished security for investors and project developers, impeding investments and hampering implementation. EZ did not structurally involve key actors in the policy formation process, which evoked criticism and mistrust from throughout the sector and other societal stakeholders (Interviews with ECN, FME, Greenpeace, Pawex, WEOM, 2002).

The energy market liberalisation has had the effect of improving the level playing field for independent developers. The dominant position of the energy distributors diminished with the abolition of regional monopolies in 1998 and the finalising of the MAPs. After the adoption of a feed-in tariff system in particular, installed capacity sharply increased, mainly due to independent project developers and locally owned projects.

4.3.2 *Spatial planning domain*

Dutch spatial planning

The Netherlands, with its high population density and overlapping land use claims, developed an extensive system of spatial planning after World War II, which has resulted in an increasingly dense system of laws and rules. In the eighties, doubts about the capabilities of comprehensive planning to mould societal developments, together with a general thrust towards deregulation, affected spatial planning. New forms of planning were encouraged, like public-private partnerships and project planning instead of structure planning (Van der Cammen and de Klerk, 1999).

The Dutch political system traditionally has been geared to consensus building between government and powerful societal stakeholders. Such negotiation processes often precede the formal presentation of policy plans to the larger public. In Dutch planning culture, this tradition applies as well (Hajer and Zonneveld, 2000; WRR, 1998). Communication between tiers of government also involves consensus seeking but through vertical administrative co-ordination of spatial planning rather than through cooperation on equal footing (Van der Valk, 2002). In the course of the nineties, spatial planning increasingly aligned with economic interests like infrastructure development. This was accompanied by calls to speed up planning procedures. It moreover resulted in decreased attention for environmental values and spatial quality (Wolsink, 2003; WRR, 1998).

Increasing central planning intervention

The Dutch three-tiered system of administration comprises the levels of national government, provinces and municipalities. The local development plan historically has been the most important planning instrument. It lays down regulations with regard to the permitted building and land use and is legally binding for public and private actors. This reflects the decentralised character of the formal planning system. Central government and the provinces provide broad framework plans and policies, which are not legally binding (WRR, 1998).

However, the planning system has evolved from local land-use planning towards a system with increasing involvement of higher tiers of government (Faludi and Van der Valk, 1994). The Spatial Planning Act (WRO)¹⁵ stipulates the competences and instruments of the various levels of government. Since 1985, changes in this Act have reflected a

¹⁵ Wet Ruimtelijke Ordening (WRO)

tendency towards more centralised planning. The ministry of Housing, Spatial Planning and the Environment (VROM¹⁶) can lay down *concrete policy decisions*, which the provinces and municipalities must take account of, in a so-called *key physical planning decision* (PKB¹⁷). The PKB was taken up in the Spatial Planning Act in 1986 and the concrete policy decision was coupled to it in 2000. The provinces can also adopt a concrete policy decision in their regional structure plans. The municipalities within the confines of the province must then take account of this decision (Van Zundert, 2001).

Furthermore, the Spatial Planning Act has included two instruments to overcome a local veto in exceptional situations and to speed up decision-making at the municipal level: the Trajectories Bill¹⁸ and the Nimby Bill. With the Trajectories Bill (1994), national government can force a municipality to bring the local development plan into line with a key physical planning decision (Van Zundert, 2001; Wolsink, 1994). This Bill has been deployed a few times to push through large infrastructure transport-projects that were confronted with local opposition.

The Nimby Bill (1993) gives national and provincial governments the power to oblige municipalities to alter their local plans to accommodate certain land uses. This instrument was intended to force decisions on unpopular facilities like waste facilities, asylum seekers centres and wind farms (Van Zundert 2001:64). The Bill owes its name to the term nimby: Not-In-My-Backyard. This assumed local level syndrome was considered a main cause for failing implementation of unpopular facilities. A first attempt to apply the Nimby instrument in 2000 was unsuccessful, when a province wanted to force a municipality to allow a sand excavation (Wolsink, 2003).

The reduction in local authorities' discretion has been supported by a general trend to prioritise the 'common good', be it economic development or global environmental concerns, over local concerns (Faludi and Van der Valk, 1994; Van Zundert, 2001).

Competences in spatial planning: three tiers

All three tiers of government have planning competences. Provincial and municipal plans must be in line with the national framework plans for spatial planning. The Ministry of Housing, Spatial Planning and the Environment (VROM) publishes Spatial Planning Documents that

¹⁶ Ministerie voor Volkshuisvesting, Ruimtelijke Ordening en Milieu (VROM)

¹⁷ Planologische Kern Beslissing (PKB)

¹⁸ Tracéwet

define the broad goals and principles of spatial planning and development.

The twelve Dutch provinces are responsible for supra-local tasks like nature protection and infrastructure. Provincial States (head of the province) can adopt regional structure plans for the whole or parts of the province. These plans give broad outlines for future developments and are not binding for citizens.

The municipalities (483 in total) have statutory power to devise local structure plans and binding local development plans. The municipal structure plan provides the general framework for municipal spatial planning. The local development plan is much more detailed and contains maps and binding regulations (Van der Valk, 2002). It is valid for 10 years, but many local development plans are older. Adopting or changing a municipal zoning involves formal consultation procedures between different levels of government, public agencies and the public (table 4.7). The provincial administration checks if local development plans comply with the provincial plans. Both municipalities and provinces largely depend on central government for their budget, which limits their freedom to act on their own behalf (Van der Valk, 2002).

Table 4.7 Adopting a local development plan

Local development plan procedure

1. Preparatory phase: draft preparation and probing opinions of the inhabitants and other stakeholders (not required)
 2. Draft of local development plan: devising a draft of local development plan
 3. Draft of plan on public display: during 4 weeks, everyone can bring up views and comments
 4. Decreeing of the plan: within 4 weeks and if views were brought up within 4 months
 5. Plan on public display: during 4 weeks; objections can be lodged with Deputy States (daily administration of the province)
 6. Deputy States decides on approval: within 12 weeks or if objections were lodged within months
 7. Public display of Deputy States' decision: for 6 weeks
 8. In case of no appeal: adoption of the local development plan. Appeal possible at Administrative Court: decision after 12 months
-

Source: VROM, 2002

Wind project development: permits and procedures

A proposed wind project in principle has to be in accordance with the local development plan. Because most local development plans have not reserved space for wind power, they must be adapted or a procedure must be taken up to circumvent this. In either case, the municipality

needs to take a pro-active decision before a developer can apply for the necessary permits.

Because changing a local development plan is a time-consuming process, developers usually ask for an exemption procedure according to Article 19 of the Spatial Planning Act. Until 1999, the ‘old’ Article 19 procedure involved the option to make changes in anticipation of a new local development plan. Since April 2000, the new Article 19 allows for an independent project procedure, which is described in table 4.8. The municipal council grants the exemption and Deputy States (the daily administration of the province) need to provide a ‘statement of no objection’ (Koeslag, 2002).

Table 4.8 Article 19-procedure

Article 19-Procedure

1. Request for exemption: municipality probes opinions of the inhabitants and other stakeholders
 2. Decision to refuse or grant exemption: within 8 weeks, by the municipality
 3. Request for exemption on public display: during 4 weeks, everyone can bring up views and comments
 4. Decision to ask for ‘statement of no objections’ to Deputy States (province).
 5. Decision of Deputy States: within 8 weeks
 6. Municipal decision on exemption: within 2 weeks
 7. Notice of objections lodged with municipality: within 6 weeks
 8. If objections are declared unfounded, appeal can be lodged at the Administrative Court: within 6 weeks
 9. If appeals are not accepted, exemption can be granted and the building permit provided
-

Sources: Koeslag, 2002; VROM, 2001

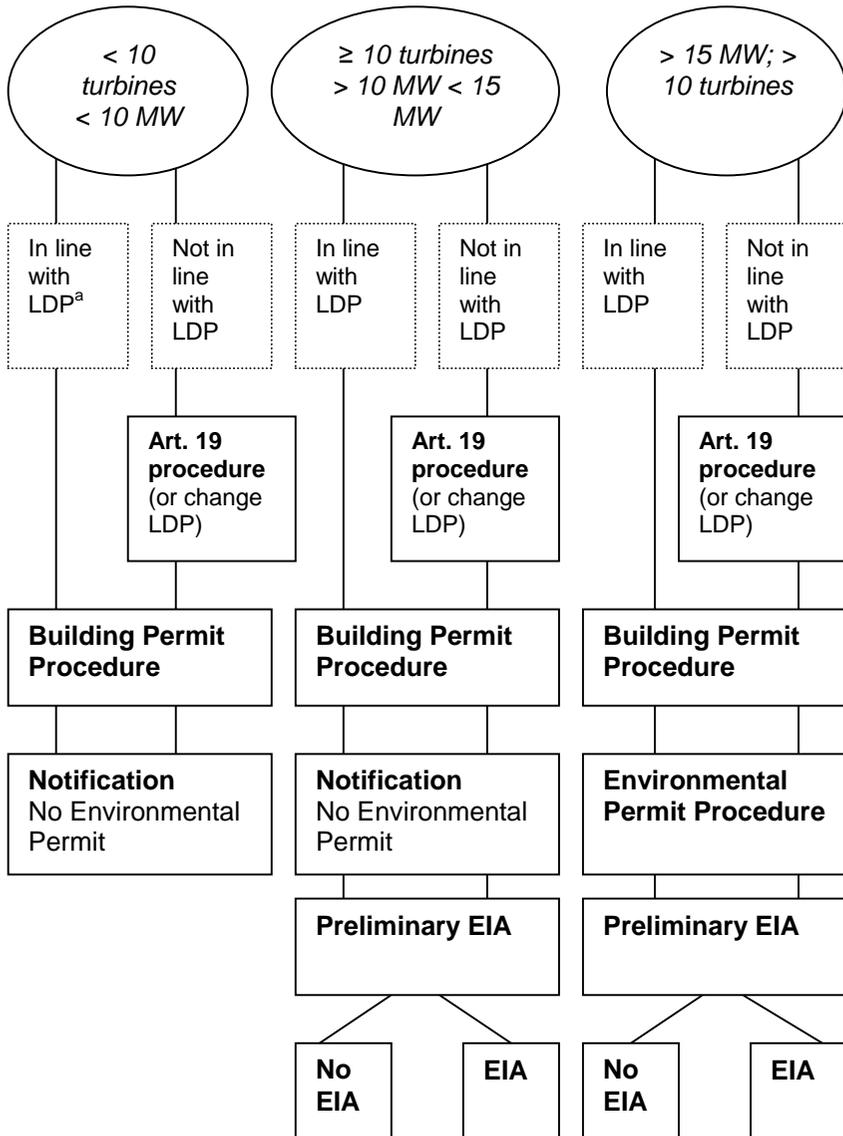
Next, depending on the size of the project, a building permit, an environmental permit and a (preliminary) Environmental Impact Assessment (EIA) are needed. The municipality grants building and environmental permits, although criteria differ across municipalities.

The application for a building permit should meet criteria related to compliance with the local development plan, building regulations, environmental and safety standards. Additional requirements can be made to compensate for the landscape impact - e.g. providing vegetation around the turbines.

The environmental permit is no longer required for every wind project. Since 2001, projects larger than 15 MW, or consisting of more than 10 turbines, require an environmental permit. For projects smaller than 15 MW a notification to the municipality is sufficient (VROM, 2001), although the project must still comply with environmental criteria.

The regulations for Environmental Impact Assessments (EIA) have also changed.

Figure 4.1 Permitting Procedures, as of 1999 and until 2004



Source: Koeslag, 2002; VROM, 2006

^a LDP: local development plan

Before 1999, all projects larger than 20 MW or consisting of more than 20 turbines were required to undergo an environmental assessment procedure. Projects larger than 10 MW needed a preliminary EIA. After 1999, all projects larger than 15 MW or 10 turbines must undergo a preliminary EIA, after which it is decided whether a full EIA is needed (figure 4.1). In addition, the province can also require an EIA (VROM, 2001).

The project proposal further needs to take account of the Birds Directive and the Habitats directive - which are translated in the Nature Protection Law, the Flora and Fauna Law, and the Spatial Planning Act. If a project is proposed for a sensitive area in terms of nature or fauna protection, the developer may need to ask the Ministry of Agriculture, Nature and Food Quality for a permit or exemption. Yet other exemptions from (quasi) governmental bodies may also be required, for instance when turbines are placed near dikes.

During each step of the procedure - Article 19, Building Permit, Environmental Permit, EIA procedure (figure 4.1) - individuals and legal entities can lodge objections and appeals. Project developers have complained about this as well as about the complexity of all the procedures they have to go through. They would prefer a single integrated permitting procedure and in line with that a reduction of the possibilities for lodging appeal to one moment during the procedure (DE Koepel, 2002; Interviews with FME, Greenpeace, WEOM, 2002).

Administrative agreement to improve siting

Local planning for wind projects was problematic from early on. The Dutch distributors - main developers after 1989 - were not inclined to involve local or other stakeholders in project development. Their limited regard for local concerns increased reluctance among municipalities and other (local) stakeholders (Westra *et al.*, 1990; Wolsink, 1996). Wind power cooperatives, on the other hand, did engage with local stakeholders and offered local benefits in the shape of financial participation. Other independent developers varied in their approach. However, overall, local ownership and inclusive project planning was exception rather than rule.

To facilitate siting, the ministries of EZ and VROM and seven coastal provinces signed the Administrative Agreement on Siting Problems regarding Wind Energy in 1991 (BPW¹⁹) (EZ, 1991). The idea was that provinces could facilitate the search for locations, inform and instruct the municipalities and if necessary involve other stakeholders.

¹⁹ Bestuursovereenkomst Plaatsingsproblematiek Windenergie (BPW)

The BPW did not indicate how the provinces should do this. Municipalities were not involved in the agreement, nor were any other stakeholders. Around 1999, regional plans had reserved siting space for some 864 MW, but this was not translated into municipal plans (Van Kaam, 2001).

The chief policy actor (EZ) attributed lagging implementation to competing land-use claims and the inability to deal with these claims at the local level, opposition from residents and environmental organisations and poor interdepartmental coordination (EZ, 1997). Discussions on how to improve the situation included the question as to what the proper role of national government was to be. The Energy Advisory Council (AER²⁰) suggested a more active and directive role for central government in assigning locations (AER, 1999). EZ elaborated the AER recommendations. In the late nineties, EZ proposed a partial revision of the Structural Scheme for Electricity Provision (SEV²¹), to facilitate siting through central or provincial designation of mega-locations (involving projects larger than 50 MW). Instruments like the Nimby Bill could, if necessary, be used to force municipalities to reserve space for wind power (EZ, 1997, 1999a, 1999b). The 1999 Energy Report went even a step further: municipalities were to be forced to create the space needed for wind power and the suggestion was made to investigate whether the permitting procedures could become a provincial competence instead of a municipal task (EZ, 1999b).

Covenant instead of directives

Neither VROM nor the provinces supported a more coercive approach, which they regarded as admissible only in very exceptional situations. Provinces moreover were generally anxious to present themselves as an indispensable administrative layer, since their role was under discussion. Hence, they argued for a new administrative covenant, in which they would commit themselves to the attainment of results (Van Duyn, 2004:104).

In 2001, the Administrative Agreement on the National Development of Wind Power (BLOW²²) was signed by all provinces, the Union of Dutch Municipalities, and the Ministries of EZ, VROM, Agriculture, Nature and Fisheries, Defence and Transport, and Public Works and Water Management. The BLOW set a target of 1500 MW installed capacity for 2010, and specified provincial quotas. Each

²⁰ Algemene Energie Raad (AER)

²¹ Structuurschema Elektriciteits Voorziening (SEV)

²² Bestuursovereenkomst Landelijke Ontwikkeling Windenergie (BLOW)

province appointed a provincial wind coordinator. The agreement did not involve the municipalities or other significant stakeholders, like private operators, power distributors or environmental and nature protection organisations. The latter regretted that their report (SNM, 2000), which indicates suitable locations from an environmental and landscape protection point of view, was not taken up in the BLOW (Interview with Greenpeace, 2002). The role of the Union of Dutch Municipalities was to inform municipalities and to create a local supportive basis for wind energy (VNG, 2003). The Union could hardly be expected to actually represent all municipalities (Interview with Wieringermeer municipality, 2003).

As a covenant, the BLOW fits well in Dutch administrative culture, as an attempt to enhance cooperation between levels of government and to coordinate tasks and responsibilities. It is less hierarchic than the measures proposed by EZ in the late nineties. Still, the BLOW advocates cooperation insofar as it results in improved implementation. Although the covenant is not legally binding, it stipulates that if municipalities have not elaborated wind power plans by 2006, higher governmental levels can order them to do so with coercive instruments provided by the Spatial Planning Act. At the same time, it is unlikely that provinces will resort to such last-ditch measures and risk a deteriorated relationship with municipalities over an issue that generally is awarded little political urgency (Interview with Province of North-Holland, 2002; TNO, 2005).

A study on the performance of provinces after the adoption of the BLOW showed that the province of Utrecht had adopted a top-down approach - designating locations, not allowing initiatives proposed for other locations, not engaging in consultation with municipalities or stakeholders. This approach negatively affected the relation between province and municipalities and other stakeholders. Besides it did not result in enhanced implementation (Van Duyn, 2005). Both Van Duyn's and another study demonstrated that the provinces since 2001 have taken up diverging approaches to facilitate siting. These varied from top-down to interactive and rather bottom-up strategies, and differed in the manner of engagement with stakeholders and municipalities. Generally, ambitious provinces that took up an interactive approach - focusing on cooperation with municipalities or initiators and indicating search areas without forcefully designating locations, have managed to facilitate siting and implementation (TNO, 2005; Van Duyn, 2005). However, it was also found that many municipalities have little knowledge of and little commitment to the BLOW, which shows that there still is only a limited

carry-over effect from the provinces towards the municipalities (Van Duyn, 2005).

The province of Flevoland has reached the highest installed capacity level (table 4.9). Apart from provincial policies that have supported farmers in their attempts to develop wind projects, landscape impact is less a contested issue compared to for instance Groningen and Friesland. Whereas the latter provinces have a strong cultural historical landscape tradition, Flevoland (reclaimed in the past century and established as a province in 1986) is a very new landscape in which wind turbines are perceived as less disruptive.

Table 4.9 Provincial installed capacity levels (MW) and BLOW targets

Province:	Beginning of 2001	End of 2003	End of 2004	Blow Target for 2010
Groningen	58	62	64	165
Friesland	69	93	105	200
Flevoland	136	372	454	220
Noord-Holland	62	151	183	205
Zuid-Holland	43	125	149	205
Zeeland	46	57	79	205
Noord-Brabant	27	37	31	115
Other provinces	2	8	8	185
Total	458	906	1,073	1,500

Source: BLOW, 2001; CBS, 2005b

IPWA: third large project failure

The involvement of five ministries in the BLOW reflects an effort to come to a better cooperation and alignment between ministries. However, in practice these ministries have diverging commitments to wind power development and operate mainly on their own account (Van Duyn, 2005; TNO, 2005). Illustrative is the 2001 cancellation of the largest ever wind project in the Netherlands, the Inter-provincial Wind Energy Project Afsluitdijk²³ (IPWA). EZ, VROM, and a power distributor had designed this 278 MW project in collaboration with two provinces and two municipalities. The project design included two lines and a cluster of turbines to be built in the IJsselmeer and in the ecologically protected Wadden Sea. The plan sparked protests amongst the public and the ministries were unable to reach consensus (Wolsink and Breukers, 2002). The Ministry for Agriculture, Nature and Fisheries openly criticised EZ because the project would be sited in an ecologically

²³ The Afsluitdijk is the dike that separates the Wadden Sea from the IJssel Lake.

sensitive area. On the other hand, EZ had a serious stake in it, having already spent 1.5 million Euros on its design and development (Van Kaam, 2001). In the public debate, the lack of interdepartmental integration was ridiculed: if the national government could not itself agree about the project, how could it expect others to support it?

The IPWA project was also exemplary in that initiators stopped consulting environmental stakeholders out of fear of opposition (Wolsink and Breukers, 2002). At first, stakeholders from environmental organisations were present when the project design was discussed. But when it became clear that a project located *in* the protected area of the Wadden Sea would be unacceptable to them, they were no longer invited for consultation (Interviews with Wadden Association (2002) and Wieringermeer municipality (2003)). Following on that, the Wadden Association started a successful campaign against this plan, gaining support from Greenpeace, WNF and SNM, two Provincial Environmental Federations and the Bird Protection Organisation. The project is presently being shelved.

Renewed interest in top-down approach

In 2004, ideas for top-down designation and speed-up planning have again come to the fore. Various proposals to limit 'hinder power' relate to a fundamental revision of the Spatial Planning Act that was started in 2004 and that aims at a streamlining and speeding-up of procedures to facilitate decision-making. With regard to wind power, EZ asked for a study on the possibilities to enhance vertical administrative coordination (top-down), to shorten and streamline permitting procedures and limit the opportunities for formal participation (B4, 2004). Suggestions were made to abolish the *actio popularis*, so that only stakeholders and not 'just anyone' can lodge appeal at the administrative court²⁴ (B4, 2004; DE Koepel, 2002). In 2004, the State Project Procedure was adopted, which allows central government to co-ordinate the decision-making procedures for projects that represent an 'urgent public interest', and in which a project minister at national level has the final competence. EZ regards this procedure as useful for wind projects as well (B4, 2004).

Proposals to curb planning procedures are unlikely to improve implementation achievements. Koeslag (2002), in a study on the relation between formal participation and implementation, has shown that permitting procedures are not a major bottleneck for wind power implementation. Although appeals usually prolong the duration of the

²⁴ In 2005 the *actio popularis* has in fact been abolished for the local development plan procedure.

permitting process, they do not affect its success rate. Once a project enters the formal permitting procedure, the probability that it succeeds is very high: 93 % (Koeslag, 2002). When some 80 % of initiatives fail, as was the case in 2002 (Kema, 2002), the larger part of these failures did not occur during the permitting process. Project proposals fail mostly before the actual permitting procedure has started (Agterbosch *et al*, 2004; Interview with Wadden Association, 2002). Hence, limiting formal participation in permitting procedures may result in some time gains, but will not lead to improved implementation rates.

Discussion: recent enhancement after all

Notwithstanding instances of participative planning (in the process of site identification and project design), project developers have habitually assumed that limiting the engagement with and involvement of local stakeholders in project planning helps to avoid complex and time-consuming decision-making with many actors. The paradoxical result has often been that those who have doubts about the project have no other option but (threatening with) litigation (Interview with Wadden Association, 2002).

In addition, EZ's recurring proposals for top-down instruments, have not encouraged collaborative approaches in project planning, nor contributed to any learning about diverse concerns and motivations behind opposition against wind projects. Such measures are unlikely to improve the conditions for local planning and unlikely to increase social acceptance at the level of implementation.

We have seen farmers' successful 'comeback' over the past couple of years. Investment security through improved financial support after 1998 motivated them to develop wind projects. In cases they were supported by the province and in that sense the BLOW may have contributed. Moreover, compared to other project developers, farmers have the advantage of land-ownership and they are locally based. Their project involves a local economic benefit, even if other residents are not offered financial participation. Furthermore, these farmers are usually better able to employ their local social and political networks than 'outsider-companies'. They are in a better position to overcome siting problems and mobilise support for their project.

4.3.3 Environmental policy domain

In the seventies, environmental policy was mainly about pollution abatement through regulation and licensing - i.e. licences were required in order to perform environmentally damaging activities (Weale *et al*, 2003; Zito *et al*, 2003). Environmental policy-making was reactive and involved “sectoral and end-of-pipe policy” (Spaargaren and Mol, 1992:339).

In 1982, with the advent of a centre-right government, discussions on the welfare state and the scope of government intervention resulted in proposals to reduce and simplify regulation. In environmental policy, efforts were made to re-conceptualise the relationship between environmental protection and economic growth. The environmental minister Winsemius (from the centre-right liberal party VVD) introduced the concept of ‘internalisation’: those responsible for environmental degradation should contribute to solve the resulting problems, but through self-regulation rather than government regulation. In the devising of new environmental policy the environmental ministry engaged in direct negotiation with industry organisations (Weale *et al*, 2003).

In 1989, the first National Environmental Plan (NMP) was adopted, which elaborated the new ideas of Winsemius and involved a shift in environmental policy-making. First, it presented the concept of sustainability as a guiding principle for socio-economic development, emphasising the need to use renewable energy resources next to conventional ones. Second, it introduced the concept of target groups of national environmental policy (Weale *et al*, 2003). Instead of enforcing strict regulations, government set voluntary agreements with these target groups. The covenants with the energy distributors (MAPs) resulted in a CO₂ reduction of 17 million tons by 2000 (EnergieNed, 2001). The target group approach and the development of the consensus instrument of covenants in Dutch environmental policies are generally regarded as institutions favouring ecological modernisation (Weale, 1992; Weidner, 2002; Zito *et al*, 2003). Ironically, however, the MAPs solidified the position of the distributors vis-à-vis independent wind power generators, although the latter were generally more environmentally motivated and committed to wind power development.

In the late nineties, spatial planning increasingly aligned with economic interests and focused on facilitating infrastructure development. Several large-scale infrastructure projects triggered debate and protests from various societal stakeholders, including environmental organisations. Around 1997, both people from the environmental movement (Friends of the Earth) and Green Left - the Dutch Green

Party - called for the need to institutionalise a 'Green Polder Model', next to the social-economic polder model, in order to accomplish a better representation of environmental interests in policy- and plan-making (Duyvendak *et al*, 1999; Glasbergen, 2002). In reaction to these calls, the minister of spatial planning and environment Pronk (from the Labour Party) attempted to facilitate open and interactive processes around several infrastructure plans, to achieve a better balancing between ecological and economic interests. However, after several failures, the green polder model was abandoned. Interest in environmental issues has waned in recent years.

The influence of the Green Left has also dwindled. It was at its height around 1997. This political party had been set up as a merger of several small parties in 1989, none of which were predominantly concerned with environmental issues. At the local level the Green Left has delivered several mayors and alderman. However, at the national level, its political influence has remained limited.

The Fourth NMP (2001) launched the new policy concept of *transition management*, involving a long-term approach to accomplish system innovation whereby the government is a sort of process manager. The Energy Report (2002) adopted the term energy transition management. It implies a government approach that is not directive or top-down (VROM, 2004).

Institutionalisation or encapsulation

The Dutch environmental movement dates back to the beginning of the twentieth century, when it placed particular emphasis on the protection of ecologically valuable areas. After 1968, a new movement arose, more concerned about pollution, destruction of natural resources and nuclear power, and more into activism and confrontational political action (Weale *et al*, 2003). Several organisations and individuals searched for alternative manners of energy generation, decentralised at the local level. These people formed the ideologically motivated grass roots movement in wind power development. In the early eighties, the general interest in environmental issues was decreasing, but the Chernobyl disaster in 1986 placed environmental and renewable energy issues back on the agenda. In the years following 1986, the Dutch wind cooperatives were established.

In the course of the eighties, the orientation of the environmental movement changed. The popularity of extra-parliamentary action waned, and several environmental organisations started to negotiate with government (Spaargaren and Mol, 1992). The environmental movement became less ideologically oriented and moved

towards a more strategic and pragmatic approach in trying to influence politics. Increasingly, they were recognised by formal political institutions and government.

The non-confrontational Foundation for Nature and Environment (SNM) in particular is close to government, and has acted more or less as an intermediary between government and the environmental movement, supplying many of the representatives for consultation and committee work. Various advisory councils and links between government and universities would appear to confirm that environmental research and environmental interests are rather well institutionalised in Dutch policy-making (Weale *et al*, 2003). On the other hand, conflicts around large infrastructure projects, and continuing calls for a more equitable representation of environmental interests in policy-making indicate otherwise.

4.3.4 Discussion: policy domains and policy framing

Wind power policies started out with a one-sided focus on large-scale deployment and industrial development. Wind power policy resided in the margins of industrial and energy-sector policy, and the main competence was and remained with the economic ministry (EZ). Accordingly, policy makers were trained in economics rather than spatial planning or environmental issues. Moreover, the energy sector had decisive influence on policy-making and wind power implementation. The progressive environmental policies that resulted in the MAP agreements strengthened the dominant position of the distributors at the expense of other project developers. With energy market liberalisation in the late nineties, government regarded its new role as more enabling and less interventionist. The influence of the energy sector on wind power policies dwindled.

In 1997, the first purple government (Labour Party, the centre-right VVD and the liberal democrats D66) published a report on the advance of renewable energy (EZ, 1997). It proposed a win-win strategy for both the economy and the environment through the development of renewables. This and several reports that followed regarded opposition as something that could be overcome through top-down legal-administrative measures as well as information dissemination (EZ, 1997; 1999a). The BLOW (2001) seemed a departure from the emphasis on top-down measures. However, it did not aim at more inclusive planning *per se*; it reflected the ambiguity of arguing for a more cooperative planning process, while remaining limited to the intergovernmental

coordination that is common in Dutch spatial planning (Hajer and Zonneveld 2000).

The fourth National Environmental Plan (2001) and the Energy Report (2002) presented a new policy strategy: energy transition management. A transition is described as a set of long-term, structural interrelated changes in multiple domains of society, involving learning processes and international in scope (EZ, 2002). Compared to earlier reports, this Energy Report awarded more importance to the need to find solutions together with market parties and other societal groups. Hence, it gave more attention to capacity building through stakeholder involvement than previous policy. On the other hand, it did not display a greater consideration for stakeholders that represent interests at the level of implementation. The new transition paradigm is unlikely to have an impact on wind power developments onshore. This is even more so, because an opposite trend is reflected in the current revision of the Spatial Planning Act, which aims to increase competences for national government at the expense of stakeholder involvement. New proposals to limit the opportunities to lodge appeals and to bring planning competences for larger wind projects under central government are not in line with the 'stakeholder approach' that the energy transition approach represents. Instead of inquiring into local concerns and considering how such concerns could be mediated, the economic ministry has over and over again proposed top-down designation of sites and the curbing of formal participation moments. Efforts have not focused on improving local social acceptance but on overruling local opposition.

More generally, the lack of interdepartmental coordination and commitment of government to wind power has inhibited it from taking a clear stance. The political configuration of the various governments has not greatly affected the general approach and throughout the years wind power has never received great political priority.

Missed chances?

The early one-sided policy approach discouraged grass roots initiatives to become the trigger of learning and implementation processes. National policies were volatile and biased in favour of the conventional energy sector. Diversity in the field of project development and manufacturing was effectively discouraged by government policies. This impeded technological innovation and learning, and it hindered project development by grass roots initiatives. The dominant project development approach was one with little economic or other benefits accruing to the local level. Some projects were developed in more cooperative fashion, but this resulted from the developers' approach and

was not encouraged by the formal planning system or practice. Generally, stakeholders have not been invited to participate in the plan-making process as contributors with relevant knowledge, nor through financial participation.

Liberalisation together with the new policy regime for renewables in the mid-1990s had the unintended consequence of improving conditions for independent wind project developers and accelerating implementation. Especially since the uptake of a partial feed-in tariff system, independent and locally based project development has increased. Recently, an installed capacity of wind power on land of 1000 MW was reached, almost five years later than planned.

4.4 Policy communities

Grass roots marginalised

Wind power advocates of the first hour involved people from anti-nuclear and environmental organisations. Organisation Renewable Energy (ODE, 1979), Little Earth (1972) and Amsterdam Windmill Group (1982)²⁵ promoted and developed small-scale decentralised wind power applications, which they associated with decentralised democratic decision-making and self-sufficiency, as opposed to the large-scale energy supply, hierarchic structures and monopoly capitalism.

However, these initiatives did not become the vanguard of Dutch wind power development. Instead of responding to and joining forces with what was happening at the grass roots level, the economic ministry (EZ) created its own network around the established energy sector (represented by SEP), EZ-related agencies and research institutes. These organisations provided advice, managed and coordinated R&D programmes, attempted to facilitate cooperation between energy producers and industry, and conducted public education and awareness campaigns. Designs for large and cost-effective turbines were based on theoretical desk research, from the field of aerospace research (Kamp, 2002). The main large-scale manufacturers in the eighties were Stork, Holec and Fokker.

Overall, a strong interest in wind power from the side of both EZ and SEP was absent. SEP's half-hearted commitment to wind power

²⁵ Organisatie Duurzame Energie (ODE); de Kleine Aarde; Windmolengroep Amsterdam.

harmed the relationship with the partners that did take wind power seriously, such as the turbine manufacturers and research institutes.

Changes in the dominant coalition

After 1989, the energy distributors (represented by EnergieNed) replaced the energy producers (represented by SEP) as coalition partner of EZ in wind energy. The large-scale oriented manufacturers had stopped producing turbines after the mid-1980s, because of the large financial risks and the small home market. The former small-scale turbine manufacturers included Lagerwey, ‘the grass roots innovator’, and various others who were used to learning by trial-and-error processes (De Jong *et al*, 2005; Kamp, 2002).

Coming from different cultures and having diverging preferences, the relationship between these manufacturers and research institutes was difficult. Moreover, the mistrust and even hostility among the manufacturers prevented them from forming a unified representation vis-à-vis both research institutes and the distributors (Interviews with ECN and FME, 2002). The failure of Wind Plan in the early nineties was partly due to the lack of cooperation between the three (Verbong *et al*, 2001). Eventually, most Dutch turbine manufacturers did not survive the nineties.

By the late 1990s and the early 21st century, the close coalition between the distributors and EZ ended, as a result of energy market liberalisation and the finalising of the MAPs. Nonetheless, with the establishment of the Platform for Acceleration of Energy Liberalisation (PVE) in June 2000, the energy companies became part of an influential expert and lobby club.

Divided wind power branch

In 1983, the Dutch Wind Energy Society (Newin) was set up as a branch association for all kinds of professionals involved in wind power development. Through meetings and conferences it promoted knowledge transfer and attempted to influence policy-making. At present, Newin counts twenty company members and 120 individual members, including distributors, independent project developers, consultants, research institutes, cooperatives, and turbine manufacturers. Another branch association that dates from 1983, FME-CWM Groep Windenergie, is an industry organisation that represents turbine manufacturers, component suppliers, steel tower builders and engineering companies.

Newin and FME represented a divided policy community. The difficulties between the distributors and independent wind project

developers led to the establishment of Pawex in 1992. This organisation of private wind power operators explicitly excluded distributors from membership. Presently, Pawex has about 46 members, including (associations of) private wind turbine operators, regional associations of wind turbine owners, cooperatives, and a cooperative umbrella organisation. Throughout the years it has invariably expressed fierce criticism of government policies.

New developers, new organisations

In the early eighties, the Organisation for Sustainable Energy (ODE) actively started to promote the model of wind cooperatives. From 1986 until 1992, some twenty-five cooperatives were set up. Fourteen of these remained in 2004. Although their role in terms of total installed capacity is limited (6 %), they have contributed to mobilising social support through offering citizens financial participation. Increasingly the cooperatives work together with other developers like farmers or energy companies. (Van Loenen, 2004).

The more commercially motivated small-scale project developers like farmers have in cases joined forces in provincial associations to pool their resources in lobbies and information dissemination and to facilitate project development by exchanging knowledge and experience - e.g. about the purchase of turbines, grid connection, technical and administrative-legal issues. A successful example is the North-Holland Association for Wind Turbine Operators (VWNH)²⁶, established in 1993. Members include both farmers and cooperatives that are active in the province of North-Holland. The VWNH represents their interests at local and regional level. They count about 140 members. The Wind Union originated from the VWNH in 2001, with the aim “to grant private turbine operators a chance on an energy market that increasingly is dominated by large energy companies” (Windunie, 2004). It sells green electricity that is generated with the turbines of the members. The recent success of farmers relates strongly to their capacity to cooperate, to organise themselves and to bargain strategically with distributors, municipalities, the province and environmental groups (Agterbosch *et al*, 2004; Interview with VWNH, 2003).

The number of companies involved in project development and consultancy has increased to more than fifty. Some of these started out as environmentally motivated self-builders, others come from elsewhere and have a sole commercial interest in wind power development.

²⁶ Vereniging Windturbine-eigenaren Noord-Holland (VWNH)

Increasingly, several companies diversify in projects abroad and offshore wind power.

There has been a rise of independent project developers and commercially motivated farmer developers. Various types of developers increasingly cooperate in project development. However, suspicion is still discernable; particularly smaller farmer project developers and wind cooperatives find it difficult to cope with distributors, as evidenced by various accounts about farmers or others that have entered unfavourable contracts with energy distribution companies (Interviews with VWNH (2003) and Zeeuwind Cooperative (2002)). Such experiences also contributed to the establishment of the farmers' VWNH and Wind Union.

Research for wind energy

The Netherlands Energy Research Centre (ECN) delivers strategic energy research and advice to the government (EZ). KEMA, the former research organisation of the energy sector has also played an important role from the beginning onwards. In addition, the Technical Universities of Eindhoven and Delft have been active in wind power research. ECN and the Technical University of Delft, previously competitors, have started to cooperate in recent years and now they together constitute a virtual institute that does well internationally.

Environmental and nature protection interests

National environmental organisations like the World Nature Fund (WWF), Greenpeace, and Friends of the Earth actively promote wind power. WWF played an important role in the development and issuance of the quality label for green energy certificates. Together with EZ it conducted a campaign to promote consumption of renewable energy. In 2001, Greenpeace established an Internet company selling green electricity to household consumers for the same price as grey electricity, and in fact gave the starting signal for the sale of green electricity to households.

The Bird Protection Association and the nature protection organisation Foundation for Nature and Environment (SNM) are generally favourable towards wind power. The twelve Provincial Environmental Federations - SNM branches - have more reservations. Together with SNM they have identified locations that are acceptable from a nature and landscape protection point of view (SNM, 2000). Most environmental organisations have supported this initiative. The Wadden Association also supports wind power generally, but it opposes

projects in or near the Wadden Area, for both nature protection and landscape protection reasons.

Support mobilised against wind power

Local opposition against wind projects dates back to the eighties, when the energy companies took on the development of the Sexbierum wind project. Over time, several local action groups have come up that oppose wind projects. Windhoek Foundation aims to protect the cultural-historic landscape of the province of Groningen against the impact of wind projects. Similar initiatives usually have a few active members but a larger number of sympathizers. In 2004, the National Critical Platform Wind Power (NKPW²⁷) was established, with the publication of a manifest against wind power, which was supported by 45 action groups. Through this platform, local action groups exchange information and strategies. Moreover, some citizen initiatives maintain contacts with groups in Germany and elsewhere abroad. Several Dutch academics that fundamentally oppose wind power have written books and regularly publish in the media, supplying local action groups with arguments. The nature and landscape protection organisations keep their distance from the anti-wind groups and wish not to be associated with them.

Performance of government in shaping a policy community

EZ established various organisations to advise on and execute renewable energy policy. Novem is the result of a merger of various organisations in 1987. The Project Bureau Sustainable Energy (PDE, 1997) is a joint initiative from the government, energy sector and business. While PDE offered practical information, Novem provided expertise and professional support to municipalities and private wind power generators. EZ, Novem and PDE conducted the campaign “Room for Wind” to inform municipalities and enhance the local support basis for wind power (EZ, 1999a). In 1999 EZ set up a Taskforce to mediate in conflicts around wind power implementation. Both interviews conducted for this research and an evaluation report on the BLOW revealed criticism from project developers on the effectiveness and the approach of Novem and the Taskforce (Interviews with Nuon and WEOM (2001), Zeeuwind Cooperative (2002); TNO, 2005). In 2004, Novem merged with Senter, which is in charge of subsidising-, credit- and fiscal arrangements in the field of renewable energy.

An integrated policy approach for wind power, in which various diverging sectoral interest cooperate and are coordinated has been and

²⁷ Nationaal Kritisch Platform Windenergie (NKPW)

still is weak. Moreover, a clear government stance about interrelated issues like climate change, innovation policy and the role for wind power has been lacking and as such the government has contributed little to the mobilisation of support in the face of increasing opposition (TNO, 2005). Although the Ministry of Housing, Environment and Spatial Planning (VROM) is responsible for both environmental policy and spatial planning (both relevant for wind power), it has had very limited resources for dealing with wind power onshore. The economic ministry has been the dominant policy actor, and both environmental as well as planning issues have been dealt with in an inadequate manner.

Table 4.10 Mobilisation of support

	70s-80s: Grass roots smothered	1990 to 1998: Energy sector dominant	After 1998: Farmers on the rise
Grass roots wind power	Grass roots but not supported	Grass roots consolidate, but remain limited	Grass roots consolidate, but remain limited
Grass roots action against wind	Rise of local opposition	Cultural-historical landscape values inspire opposition	Cultural-historical landscape values inspire opposition
Wind power sector	Fragmented - Grass roots marginal and e-sector dominant - Conflicts among several parties	Fragmented - Grass roots marginal and e-sector dominant - Conflicts among several parties	- E-sector no longer dominant - Rise of farmer developers - Decrease in conflict
Conventional e- sector^a	Not supportive of wind power	E-sector developers dominant	E-sector no longer dominant
Environmental interests	Grass roots energy activism	Actively pro-wind	Actively pro-wind
Nature & landscape interests	Tradition of landscape protection	Conditional support for wind power developments	Conditional support for wind power developments

^a E-sector: conventional energy sector

Legacy of discord

From the beginning onwards, the policy community that took shape around wind power was fragmented (table 4.10). A first dividing line was created when EZ discarded small-scale grass roots developments in project development and turbine manufacturing. Because grass roots

initiatives were not encouraged, mobilisation of support and the creation of social acceptance through such projects remained limited.

In the eighties, manufacturers, research institutes, distributors and independent developers often did not get along with one another. This impeded the formation of an effective unified voice that could exert leverage on policy-making. Hence, mobilisation of support both at the national level and at the level of implementation was difficult. Moreover, government has contributed little to improve the situation. The Dutch system of consensus building between government and powerful societal stakeholders implies that some actors have better access to the policy arena than others. The energy companies had direct access contrary to others involved in wind power development. Defining the distributors as target groups in the MAPs only exacerbated the inequality between them and other developers.

At the beginning of the new century, Windkoepel and the DE Koepel were established. Windkoepel has been renamed the Dutch Wind Energy Association (NWEA). The aim is to enhance the leverage on politics and policy makers through a stronger unified voice. Even should it prove more successful in exerting leverage at the level of national policy, to improve social acceptance at the level of implementation might be more difficult. Support has been mobilised against wind power throughout the years, and almost every new project faces local opposition at present.

4.5 Changes in capacity building for wind energy

Institutional capacity for wind power implementation refers to the involvement of a variety of actors and their knowledge, in order to build capacities to embed this new technology in the existing practices and routines of society. Institutional capacity building has remained limited at the national policy-making level as well as at the local level of implementation.

Government policy set out the path to be taken by targeting large-scale applications and favouring energy companies as project developers and this approach narrowed future options for wind power implementation. Discriminatory policies effectively discouraged the development of diversity in both project development and manufacturing. It undermined the development of the existing grass roots basis and as such foreclosed a development path that might have led to a fruitful exchange and cooperation among a large variety of actors

(manufacturers, generators) involved in wind power developments at the grass roots level.

The energy sector-developers were not successful in developing projects. Lagging implementation and the resulting absent home market undermined the infant manufacturing industry, which is still widely regretted, as the Dutch initially had good opportunities to become successful in this sector.

The past decades have witnessed a series of different and overlapping policies, which was strongly criticised by the *Wind power needs to catch up*-story, for this volatility has diminished security for investors and project developers. Most policy interventions can be understood either as corrections of deficiencies or failures of existing policies (e.g. the termination of strong industrial support and the redressing of the REB-deficiencies) or as efforts to make policy more compatible with the demands of liberalisation (e.g. the move towards fiscal measures), and not so much as the result of experiences with wind power implementation or of interaction between relevant stakeholders. EZ did not structurally involve other levels of government or key actors in the policy formation process, which evoked criticism and mistrust from throughout the sector and other societal stakeholders (Interviews with ECN, FME, Greenpeace, Pawex, WEOM, 2001). The discarding of stakeholders' knowledge, expertise and experiences appears to have added to the turbulence and low success rate characteristic of Dutch wind power policies. On the other hand, cooperation among actors involved in wind power development has also been troublesome, which has reduced the likelihood of a univocal advocacy for wind power that could act at local, regional and national levels. It has thus become difficult to exert leverage on politics or to mobilise support.

The dominance of a project planning approach with little consideration for local environmental, landscape and economic interests undermined local support for wind power development. At the local level, support was mobilised against wind projects. Some of the respondents from the *Wind power needs to catch up*-story argued for a more inclusive project development approach, by involving people early in project planning and by offering financial participation. However, other respondents from this story were sceptical about either financial or planning participation. *Wind power not at all costs*-story emphasised the importance of the planning system to ensure that nature protection interests are taken into account. This story argued for early involvement of nature protection organisations, during the phase of site identification and project design, to prevent appeals later in the process.

In trying to grapple with local opposition, EZ has inquired little into the diverse motivations behind opposition. Arguments for top-down indication of sites as well as for speed-up of local decision-making are based on the same assumption, namely that opposition arises from local and individual selfishness. It implies that the reasons underlying local opposition are inherently less valid than those for the realisation of the project (Vlek, 2000). Respondents involved in planning have most explicitly stated how this branding of opposition as illegitimate, together with the perception of the planning system as merely a barrier to development, results in thinking about hierarchical solutions that go against Dutch culture and that are likely to create more antagonism and conflict without actually solving any problem (Interviews with Province of North-Holland (2002) and Wieringermeer municipality (2003)). In addition, studies on waste facility planning in the Netherlands have concluded that hierarchical decision-making runs counter to the current planning practice because it damages existing co-operative attitudes (Devilee, 2002; Van Baren, 2001).

Dutch wind power development was for a long time characterised by a ‘techno-corporatist’ interpretation of ecological modernisation, emphasising expert knowledge and centralised decision-making. The most important change, occurring in the 1990s, concerned a phased market liberalisation and the curtailment of privileges of the power distributors, since this opened up opportunities for more locally owned projects. Consequently, these farmer developers organised themselves, pooled their resources to solve problems and to mobilise support (at the same time providing a counterweight against the distributors). These locally based developers became more successful in implementation than the energy companies had ever been in the years before.

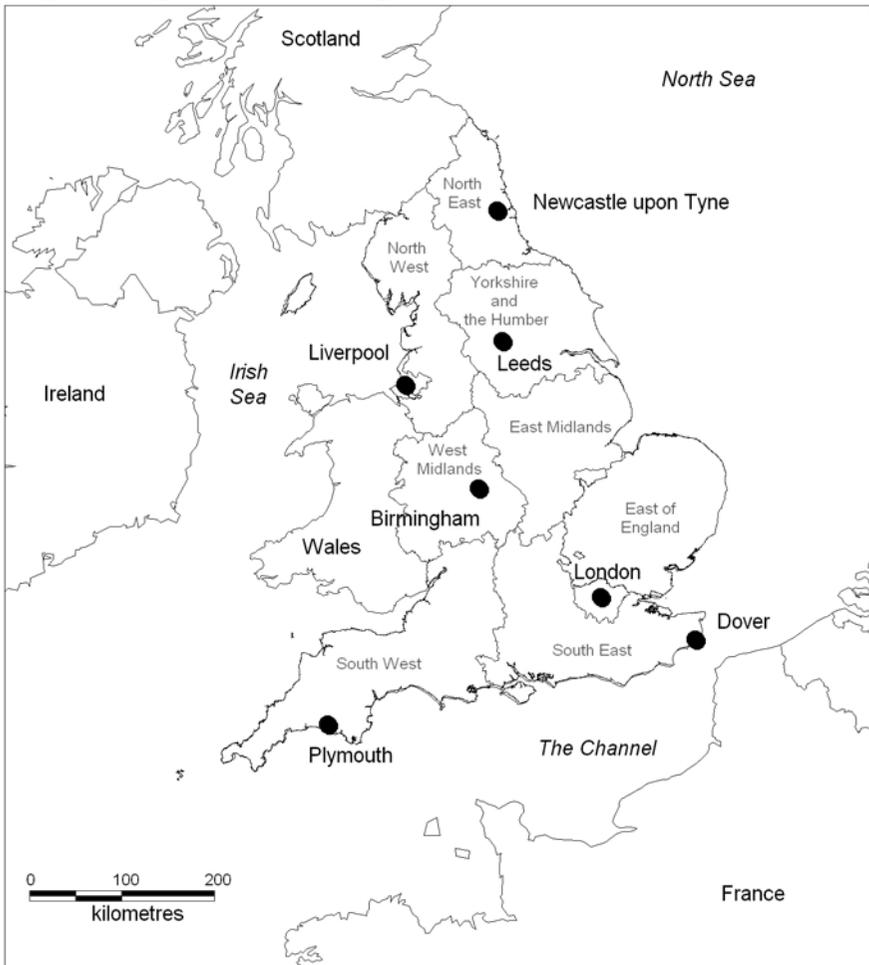
Hence, in spite of weak institutional capacity building and lagging implementation in the early years, this has not fully foreclosed later developments. The remaining challenge for wind power project planning and policy formation is to take account of multiple goals and interests, to institutionalise capacities for joint problem solving and learning at the level of implementation, in order to achieve a longer-term societal commitment to a transition towards a more sustainable energy supply system (Dryzek, 2005).

5 Wind energy in England

5.1 Introduction

Our second case study is England (map 5.1). England is part of the United Kingdom (UK), together with Wales and Scotland. Of these three Countries, England is the largest and most densely populated. It borders Scotland to the north and Wales to the west. England surrounded by the North Sea, the Irish Sea, the Atlantic Ocean and the English Channel.

Map 5.1 England and the regions



Coal has for long provided the main source of energy in Britain. In the late sixties, offshore oil and natural gas reserves were discovered and the UK became more or less self-sufficient in these fuels. In addition, UK has been a pioneer in nuclear power (Elliot, 1997).

A large part of England consists of rolling hills, and there are some mountains up in the north (the Pennines). Although wind resources are not as good as in Scotland, they still surpass those of both the Netherlands and North Rhine-Westphalia. However, wind power developments have progressed slowly and with difficulty in England. Opposition against wind projects has been in evidence from early onwards, turning wind power into a rather controversial issue. Nevertheless, in 2002 a renewed optimism was visible, after the launching of new and ambitious wind power policies. In 2003, 0.3 % of electricity generation in Britain was from onshore wind power (IEA, 2005).

5.2 Stories on wind

An analysis of nineteen interviews (annex A) and stakeholder documents resulted in three stories that show different perspectives on whether and how wind power implementation should take place in England (table 5.1, 5.2 and 5.3). Unlike in the Dutch and NRW case, we did not interview a separate research institute, because research and development has been dispersed among various companies. Respondents from sub-national governmental bodies were all from the North-western Region. This area is attractive for wind developers because of its good wind speeds, but projects have faced opposition from landscape protection organisations as well as from local anti-wind groups. In addition, this region harbours one of the very few community projects (Baywind Cooperative). Four respondents did not fit in any story: the Royal Society for the Protection of Birds (RSPB), English Nature (a public body concerned with ecological impacts of wind power), a landscape official from the County of Cumbria, and a local planning officer in Barrow.

Story 1: go for ambitious targets²⁸

“Wind power is important for the future security of supply in Britain. It is renewable, economic, safe and good for the environment. Furthermore, it is a fast growing sector, creating jobs in manufacturing, environmental consultancy, engineering, and financial and legal services.

²⁸ Written sources: BWEA, 1994, 2004a, 2004b; Hill, 2001.

The combination of environmental and economic aims results in a win-win situation for the country. Wind power implementation can be encouraged within the context of market liberalisation. The role of the government is to facilitate the development of wind power and provide support until it can compete with fossil sources and nuclear power. The newly adopted quota obligation system has generated increased interest in wind power and wind projects are coming upstream now. This support system offers opportunities for small projects as well.

Table 5.1 Actors and coded arguments of story 1

Story 1: Go for ambitious targets

Respondents:

- BWEA (wind power branch)
- Npower Renewables (energy-sector wind developer)
- Greenpeace UK (national environmental organisation)
- DTI (national ministry responsible for energy policy)

Respondents partly:

- Wind Prospect (private wind developer)
- RPA (renewables branch)
- AEP (energy producers branch)
- ODPM (national ministry responsible for planning policies)
- Defra (national environmental ministry)

Stakeholders generally:

- Pro-wind lobby, members of BWEA; World Nature Fund, Friends of the Earth

Coded arguments^a: remar 9; techbar 6; eduopos 5; planbar 4; proced 4; pragpart 4; locexp 4; prienv 3; nimby 3; onevoi 3; polfac 2; prienv + 1; partbegin 1; costeff 1; lpf, 1; careplan 1; compreh 1; moreways 1; resector 1; locfin, 1; natpol 1

^a numbers indicate how often each argument was found

The new national planning policy guidance states strongly that the aims and targets apply to the local level as well. Local authorities should realise that they have a responsibility in fighting climate change at a local level, and can be supported in this by regional targets and strategies. Planning delays are a big problem. It can take a long time to get a wind farm application through planning. It would be good if planning decisions could be speeded up. The overriding goal should be the global concern to fight climate change. Wind power represents a wider public interest. Local councils should make planning decisions in line with the public interest and not to serve someone's private interests - e.g. when people don't want wind turbines because they don't like them. Furthermore, local authorities are not best qualified to designate areas for wind power implementation, and the market should decide where wind energy developments are to go, providing the developments meet certain criteria.

Small cooperative projects with local ownership are nice, and certainly good for better social acceptance, but we have to be realistic: they are not going to help us to reach the ambitious government targets. There never has been much of a cooperative tradition anyway. It is the developer's responsibility to engage with the local community and the BWEA has best-practice guidelines for this. Most developers really go a long way to consult the public, but early involvement of local communities at the pre-application stage would be very difficult. As soon as an application or proposal gets in the public domain, all hell breaks loose and you get stories in the press and that is not constructive.

Opposition against wind farms comes from a small but vocal minority, supported by some very influential people who get a lot of media attention. Opposition is getting better organised and that is a worry, there is a lot of misinformation and we should counter that with education. Motives to oppose a wind project locally often boil down to visual and landscape issues. People do not want their view spoiled by wind turbines. Furthermore, people are afraid of change, and they don't realise that many landscapes looked very different a century ago. They like the old windmills built hundreds of years ago; that is now heritage. Anti-wind groups do not oppose wind projects from a technical point of view but from an emotive kind of view. Noise issues are a non-issue, since it is something that can be measured objectively and mitigated, just like impacts on birds and habitat. With landscape it is more difficult, because it is so subjective. In the end, opinion polls show that the general public still favours wind power. Most people like wind power, they think it is fantastic as soon as they have become more familiar with it.”

Story 2: The local community as starting point²⁹

This story represents stakeholders (table 5.2) that share the conviction that the local community should be a major consideration in project planning and policy-making. They do not converge in their support for wind power, as they represent both cooperative wind developers as well as landscape protection interests. Where a respondent expressed arguments that are specific for one of these two groups, we have indicated this with an additional reference to the type of respondent.

“We should take climate change seriously and change our lifestyles to become more sustainable. In that light, the development of renewables is a good thing and finally the government seems to

²⁹ Written sources: CPRE, 2003, 2004a, 2004b, 2005; FLD, 2004a, 2004b; Huddart and Nattrass, 2004.

recognise that. *Landscape*: “However, we should be careful not to replace one environmental problem with another. The preservation of beautiful landscapes, quiet areas where people can go to, is of crucial importance.”

The current neo-liberal dominance and emphasis on privatisation runs counter to achieving a true shift in the way our energy system works. Renewables offer the chance to build up a decentralised electricity supply, close to the community. Moreover, wind projects can be part of rural regeneration. If we can get renewable energy more locally, then the income generated by that will go to the local people, instead of the multinational corporations. The current system is too much focused on the large utility-based players. The level playing field is disadvantageous for small projects. Big utilities are planning hundreds of MW wind farms that are just going to generate a huge amount of money for a few people. Now who is benefiting from that? Not the local community! Community ownership is the most effective way to keep economic benefits within the local economy; it creates a sense of involvement and improves people’s understanding and appreciation of energy generation. *Cooperative*: “The model of community ownership guarantees that there is true involvement of the local people. It is a tradition that goes back to the 18th century.”

Table 5.2 Actors and coded arguments of story 2

<i>Story 2: The local community as starting point</i>
Respondents:
- Baywind Cooperative (wind cooperative)
- Council for the protection of rural England (CPRE ³⁰)
- Friend of the Lake District (FLD)
Respondents partly:
- Wind Prospect (private wind developer)
- North West Regional Assembly officer
Stakeholders generally:
- Actors involved in community projects and local initiatives, part of the landscape and countryside organisations (that conditionally support wind), part of the planning community that draws attention to quality of place issues
Coded arguments: prienv 3; partbeg 3; bottup 3; partpart 3; locfin 3; natprot 2; realgoa 2; moreways 2; bigbus 2; locexp 2; remar 2; natpol 1; remar 1; careplan 1; partbeg 1; nimby 1; compreh 1; localat 1

What kind of energy supply do we actually want? It is not the national government or the big companies that should provide the answer. We

³⁰ CPRE has been renamed Campaign for the Protection of Rural England. However, while we were doing our research its name was Council for the Protection of Rural England and that is the name we will use.

should look at the local and regional capacity to produce energy, in terms of resources and environmental, social and economic constraints; that should be the starting point. Strategic planning for energy should promote energy conservation, energy efficiency and small-scale renewable technologies before relying on large-scale wind power schemes. *Landscape*: “The ‘presumption in favour’ of wind power is not a good thing, for it does not reflect the multiple interests that are at stake at the local level. It means that the balance will always be weighed in favour of a nationally set target. Landscape character is not just about whether something is pleasing to the eye. It is about people’s connections with their surroundings, the historical significance of a landscape to its community.”

Cooperative: “Objectors tend to be affluent and retired, having time and money to make the big sting. They feel that they buy the view and want the place to stay like a park. The nuclear lobby furthermore pays people to oppose wind farms.” *Landscape*: “The anti-wind lobby, Country Guardian plays on emotions and contributes to polarisation, while that is not what we need. We need a proper debate about the role of wind power. However, when people object for landscape reasons, it is because they love their wild countryside and want it to be dealt with properly. This tradition to protect our landscapes goes back to the Romantic Movement. Industrialisation damaged our environment so now we have become even more protectionist and careful about it.”

Story 3: Steel monsters

“The stated goal of fighting climate change through implementation of wind power is ridiculous, because the contribution of wind power to our electricity supply is a very small fraction. You pay a lot of money and ruin the landscape, for a trickle of electricity. The contribution does not weigh against the negative impact on the landscape. Wind power development is not reconcilable with the energy market liberalisation. It costs too much, and this taxpayers’ money could have been spent better on other solutions to fight climate change. This ‘presumption in favour’ is a result of the lobby of big companies and organisations like Greenpeace. The majority of Labour is in support of renewables, and they represent urban areas, so they don’t care. The rural constituencies feel differently. We have very beautiful landscapes and people feel very strongly about it. The word ‘farm’ has the connotation of something rural, but wind farms are in fact industrial applications that do not fit with the rural landscape. Big companies make profit at the expense of local people, who suffer from the landscape impact and the negative effects on tourism. However, what you see is that local people don’t

want it and they protest. The local planning officers listen more to national government and developers than to their own people, and that is why they find the people protesting at their doorsteps. The Royal Society for the Protection of Birds as well as the Council for the Protection of Rural England have not stood up firmly against wind power; the RSPB even supported it. Because of that their members and branches are outraged.

Table 5.3 Actors and coded arguments of story 3

<i>Story 3: Steel monsters</i>
Respondents:
- Country Guardian (national campaigning network against wind power)
- Maiwag (local anti-wind power group)
Stakeholders generally:
- Local anti-wind groups, Renewable Energy Group; Artists Against Wind Farms
Coded arguments:
- bigbus 2; landscap; nocon; realgoa; natprot; pragpart; partbegj; nodare

Country Guardian: “We are being accused of being nimbys and of not caring about global warming and our children’s future. Yet others accuse us of being pro-nuclear. That is rubbish; all we do is protecting the landscape from wind turbines.” *Local anti-group*: “Local citizens are not taken seriously and their basic rights are not protected by the system, while the companies can do whatever they like and behave arrogantly. When it comes down to the quality of life of the residents, it will be sacrificed every time for profits of a big company, the shareholders dividend or government trying to prove how green they are.”

Areas of contention

These three stories reveal tensions when set against each other. First, the landscape issue is a contentious one. Both the landscape arguments in the *Local community*-story (2) and the *Steel monsters*-story (3) emphasise that the value of the English landscape tends to be underestimated when wind projects are developed. The *Ambitious targets*-story (1) acknowledges that the English are attached to their cultural-historical landscape, but does not see how wind turbines would make such a landscape less valuable. Second, ideas about the current energy and economic setting diverge. The *Ambitious targets*-story is clear in its strong market orientation, while *Local community*-story criticises the neo-liberal rationale because it prioritises economic over other considerations. A third issue concerns who gets to make decisions about wind power implementation. According to the second (and third) story, the local community should form the starting point for decision-making so that local interests, values

and concerns are taken account of. Against this, the first story argues that national targets and the public interest of wind power development should form the point of departure. Fourth, there is a distinction between those who regard the planning system as a bottleneck (*Ambitious targets-story*), and those who emphasise the importance of the planning system because it allows for the weighing of different interests against each other (*Local community-story*).

Overall, there was little nuance when it comes to accounting for the diverse possible motivations behind opposition. Story one attributes opposition against wind to fear of change and local selfish attitudes. Respondents from the *Steel Monsters-story* expressed their irritation at being called nimbys all the time (Maiwag, Country Guardian). Both the *Local community-story* and the *Steel monsters-story* distinguish between on the one hand the local community, and on the other hand the big outsider developer companies, arguing that the latter are conducting their business at the expense of the former. Country Guardian (story 3) furthermore stated that the pro-wind coalition is urban-based and that both policy and wind turbines are imposed by the centre on the rural periphery.

In the sections that follow, the broader historical-institutional context of wind power developments in England are presented, in order to arrive at a better understanding of how all these current tensions have come about.

5.3 Policy domains: energy, planning and environment

5.3.1 Energy domain

The first oil crisis in 1973 evoked some interest in renewables, although the Labour government remained sceptical about their potential contribution. In 1974 the Energy Technology Support Unit (ETSU) was established to identify the possibilities and potential of renewable energy technologies. In this year, the Department of Energy (DoEn) started a first research programme on renewables. A White Paper in 1978 indicated that wind power was not yet considered interesting, whereas wave and tidal were regarded as the most promising options (Dinica, 2003; DoEn, 1978; Elliot, 1997).

Renationalised energy system

Back in 1947, the British government had nationalised key domestic industries, including the electricity sector. In 1957, the Central Electricity Generating Board (CEGB) was established to preside over the construction and operation of all power stations. The CEGB supplied 95 % of power requirements in England and Wales (Cheshire, 1996). It was responsible for transmission of electricity through the national grid to the fourteen Regional Area Boards - twelve in England and two in Wales. These Regional Area Boards supplied electricity to final consumers in their respective service areas. The Electricity Council was entrusted with the central management of finance, taxation, industrial relations, R&D policies and policy advice (Cheshire, 1996:18). In practice however, the CEGB fulfilled a principal role with regard to investment decisions and national policies. The electricity system was strongly integrated and centralised (Suck, 2002).

Throughout the seventies and eighties, government support for renewables consisted mainly of R&D funding and a few demonstration projects. When Thatcher's Conservative government took office in 1979, the DoEn's budget for renewables was cut back (Musgrove, 2003). Moreover, the Conservative ideology involved a fundamental belief that government intervention should be minimal and that public ownership inevitably was linked to inefficiencies. What followed was an overall economic policy of privatisation and deregulation of nationalised industries, but for the energy sector, privatisation did not start until 1989. Economic considerations became the main concern, also with regard to renewables (Elliot, 1997).

Preference for large and many

Overall, the CEGB was supportive of the conventional and nuclear energy sector. There was little room for new ideas or decentralised concepts about electricity generation and supply (Suck, 2002). Still, from 1983 onwards, interest in wind power increased. The wind power R&D programme was paid for by both public and private capital. Private capital came from companies that were gathered in the Wind Energy Group (WEG) consortium, as well as from independent private companies like Howden & Co. WEG's successful 250 kW prototype was followed by a 3 MW turbine in 1987, built under the auspices of the CEGB (Elliot, 1997). A quarter of the wind programme budget (some 17 million pounds) was spent on this experimental mega-turbine in Orkney, Scotland. It was an example of the practice to support projects of overly large dimensions, at a time when the technology was not yet mature. Soon it witnessed technical failures. The choice to invest in the Orkney

turbine went at the expense of support for smaller applications that would have stood a better chance of being successfully introduced onto the market (Suck, 2002). After 1987 the emphasis shifted from large towards medium-size designs (Dinica, 2003).

Renewables policies: unrealistic expectations

In 1982, the Advisory Council on R&D for fuel and power (ACORD) published estimates of the costs and potential of various technologies. In 1986 an update followed and in 1988 a new renewable energy review was published: Energy Paper 55. The earlier emphasis on technology was supplemented with a focus on cost-effectiveness and commercialisation. The report envisaged the development of renewables in three phases. In the first phase, commercial viability would be demonstrated. The second phase would consist of further assessment and large-scale demonstration, through a cost-shared development programme with industry. Hence, government support for R, D&D was to decrease progressively, and industry was expected to take over this role in the near future. In the final phase, the process of demonstration and technology transfer to industry would be completed. Market introduction was expected to follow as soon as cost-effective and commercial turbines could be produced. By then, government support would no longer be needed. Wind power was expected to deliver electricity on a competitive basis by the end of the nineties. In 1988, the first phase was considered completed and phase 2 as well under way (DoEn, 1988). However, this overly optimistic plan for early market adoption did not work out as imagined. The assumption that government support was only needed for research and development, and perhaps for some demonstration, was related to the preference for minimal government intervention.

Overall government spending on renewable energy technologies remained limited in the seventies and eighties, amounting to a tenth (around 20 million pounds) of the spending on nuclear power (200 million) (Toke, 1998). A decline in energy demand between 1973 and 1984, together with oil discoveries in the early eighties provided little incentive to develop renewables either. In choosing which technologies to support, the main consideration was economic attractiveness. However, frequent technology reviews changed their assessments of economic feasibility over time (Dinica, 2004; Elliot, 1997). This caused insecurity among both turbine manufacturers and developers. A large part of R&D expenditures was invested in technologies that later on were curtailed (wave and geothermal), or 'changed tracks', as was the case with wind power (Suck, 2002). In 1985, Labour members of parliament strongly criticised this practice. Instead they argued for a

larger budget, to encourage technological diversity so that technological development and competition would eventually show the viability of each of the technologies (Elliot, 1997).

Liberalisation and deregulation

The Energy Act of 1983 was a first but not very successful attempt to break the CEGB monopoly. It required the electricity boards to purchase electricity from private producers at avoided cost. Independent (or non-energy sector) producers were granted the right to use the system, for which they paid charges, and to sell power to their own customers. The payments to the private producers were lower than those to the CEGB. This and the high charges for use of system impeded the access of independent producers to the market. They established the Association of Independent Electricity Producers (AIEP) in 1987, but their situation did not improve much until the adoption of the Electricity Act of 1989.

The 1989 Electricity Act prompted the privatisation and liberalisation of the energy sector in England and Wales. Four elements can be distinguished in the discussion on changes in the electricity system: generation or production; high voltage transport or transmission; local and low voltage transport or distribution; and retail and marketing or supply (Surrey 1996:8). Prior to privatisation, the electricity industry was restructured. The CEGB was split up into three segments: two power producers, a transmission company, and a distribution network consisting of twelve Regional Electricity Companies (RECs) - the former twelve regional area boards (Thomas, 1996). These segments initially remained under government ownership, for the process of privatisation was to proceed in stages. The two non-nuclear power producers were National Power and PowerGen. At first, the RECs became the owners of the national grid (high voltage transmission), but in 1995, the Office of Electricity Regulation (Offer) required them to sell almost all of these shares to the National Grid Company (Thomas, 1996:58). This National Grid Company provided electricity transportation services throughout England and Wales. It supported the mechanism to balance supply and demand, the Electricity Pool, which replaced the system of central planning of electricity generation. The Pool operated as a day-ahead spot market where electricity was traded for the expected consumption the following day, during each half hour (Dinica, 2003:499). The RECs furthermore had to separate their distribution and retail activities. Distribution would remain regulated, but the retail and supply part would gradually be deregulated. In December 1990, the RECs' shares were sold to the public. In March 1991 the government sold the shares

of the power producers National Power and PowerGen. For the generated electricity, market-based prices were now set in the wholesale Electricity Pool. The regulator Offer intervened several times to prevent duopolistic behaviour of National Power and PowerGen.

To encourage competition in generation, the RECs were allowed to have generation assets as well, as long as these would not exceed 15 % of their individual electricity sales. The result was a surge of REC investments in independent power projects. In addition, the REC-boards created subsidiary companies in electricity generation (Mitchell, 1995).

The liberalisation of electricity supply was introduced gradually. In 1990, large consumers were free to choose their suppliers and no longer required to purchase from the REC in their area. In April 1994, the market for small industrial users was opened up, followed by the remaining smaller consumer market in April 1998. From 1996 onwards, new suppliers have entered the market, including RECs operating outside of their former distribution areas, as well as new companies set up by National Power and PowerGen.

Nineties: enabling the market for wind power

The re-elected Conservative Government abolished the Department of Energy and most of its functions in 1992, as part of its campaign of liberalisation and privatisation. Remaining responsibility for energy policy was largely brought under the remit of the Department of Trade and Industry (DTI). After the dismantling of CEGB, the newly established Renewable Energy Advisory Group (REAG) reviewed the government's energy strategy. The REAG addressed a broad range of issues, and its advice - together with reviews from the Energy Select Committee - found its way into the new DTI Energy Paper 62 of 1994 (SPRU, 1999). Like in the eighties, the emphasis was on cost-effective, commercial and large-scale applications, but the ambitious three-phase plan was no longer mentioned.

Apart from broad aims like pursuing a diverse, secure and sustainable energy supply, and attaining a reduction in greenhouse gas emissions, DTI stressed the business opportunities for the renewables industries and technologies. In addition, renewables development could contribute to rural development, through local electricity supply and job creation (DTI, 1994). The role of government as a facilitator in market enablement was to continue. DTI also paid more attention to non-technological factors. Most importantly, market development had become a key concern. The belief that market introduction would automatically follow as soon as a cost-effective technology had evolved,

was abandoned. The Non Fossil Fuel Obligation (NFFO) would become the centrepiece of policy.

Support for nuclear power

Privatisation of the nuclear power sector turned out unattainable. For this reason, the Non Fossil Fuel Obligation (NFFO) was introduced, as a kind of subsidy scheme for the nuclear industry (Mitchell, 1995). The NFFO obliged the suppliers in England and Wales to buy a specified amount of electricity generated with nuclear stations. In this way the purchase of electricity from nuclear power at premium price conditions was guaranteed. Beforehand, the government had asked the European Commission for permission to subsidise the nuclear industry. In this request, the government had used the formulation 'non-fossil fuel' instead of 'nuclear'. The implication was that renewables could lay claim to this support mechanism as well, which is indeed what happened. The European Commission allowed the adoption of this tendering system until 1998. Between 1990 and 1998, five NFFO Orders were in place. In addition, there was a Supporting Programme for renewables, managed by the Energy Technology Support Unit (ETSU). Wind energy received support under this programme. Furthermore, cross-cutting programmes dealt with commercialisation, competition and export (Cleirigh, 2001). In 1999, the proportion of NFFO support that went to renewables was 1 %, the remainder all being reserved for nuclear power. This percentage increased over the years to over 10 % (Mitchell, 1998).

Workings of the NFFO

The Non Fossil Fuel Obligation was a tendering system. The central government defined the eligible capacity of renewable energy generation for a specified period, and (from NFFO 2 onwards) the capacities for different technology bands (e.g. wind power, biomass, landfill gas etc). Following on that, producers of renewable electricity could participate in a competitive bidding process on a prearranged date to obtain purchase contracts. The granting of contracts and the price paid for renewable electricity was decided on the basis of this competitive bidding. The distribution companies (RECs) were collectively responsible for the purchase of renewable electricity according to the NFFO contracts and they set up the Non Fossil Purchasing Agency (NFPA). Assisted by the regulator Offer, they scrutinised each project on technical and commercial merits - the so-called 'will secure test' - to make sure that the project would secure their obligation to purchase renewable electricity. Each project was assessed separately. From the proposals that passed this test, the winners were those that could offer the cheapest bids per

kWh. They got the contracts. On the basis of the information provided in the will secure test, the price paid per kWh could be agreed upon (Mitchell, 1995). This contractual price consisted of the average monthly Pool purchasing price plus a premium. The difference between the premium price and the pool price was funded from the fossil fuel levy (FFL) on electricity, paid by consumers via their electricity bills. The amount available for renewables support increased from 6 million pounds in 1990 to 73 million pounds in 2000 (Cleirigh, 2001).

The first tendering rounds: intense competition

Unlike NFFO 1, the second tendering round awarded contracts after competitive bidding *within* technology bands. Since the government defined the maximum amount of capacity to be contracted for each technology band, it could 'pick winners' and had a great influence on the choice of technology (Mitchell, 1995; Suck, 2002). There were fewer years left until 1998 than in the first NFFO round, so the premium prices were higher. This attracted investors, particularly National Wind Power and PowerGen Renewables, companies set up by the large two power producers. During NFFO 2, certain problems inherent to the mechanism surfaced. Since the payments were scheduled to stop after 1998, developers had to recover the capital costs within a short period of time - wind power has high capital costs but low running costs. Hence they were in a hurry to realise their projects as quickly as possible (BWEA, 2006a). Partly as a consequence, developers chose sites with the highest wind speeds, which often were ecologically sensitive sites or areas valued for their scenic beauty. When several wind farms were developed at the same time, mainly in Wales, this caused widespread concerns among those who felt that things were going too fast and that there was too little local involvement and too little care for landscape impact. The lack of fine-tuning between the tendering system and planning became apparent (McKenzie Hedger, 1995; Mitchell, 1995). In addition, small-scale and independent producers had difficulty to obtain contracts, because their projects were often more expensive than the larger ones and it was hard for them to obtain the needed finance to make the initial investments.

Another consequence of the 1998 end date and the resulting hurry was that developers bought foreign turbines. The main domestic turbine manufacturer Wind Energy Group (WEG) produced turbines for National Wind Power and was unable to deliver more turbines to others on such short notice. Moreover, countries that had already witnessed growing domestic markets could deliver cheaper turbines. Of 415 turbines bought for the NFFO 1 and 2 projects, 345 came from

abroad (Mitchell, 1995:1082). The domestic turbine industry was still in its infancy and the competitive mechanism of the NFFO contributed to its demise.

Three more NFFO rounds

In July 1993, the DTI announced a third tendering round and emphasised the need for NFFO prices and the market prices to converge. This was to be achieved through ongoing competition in the allocation of the NFFO contracts.

The NFFO 3 contracts were announced in December 1994. The procedures for application had changed again. The contracts would be awarded for a period of fifteen years, since the 1998 limit had been abandoned with the permission of the European Commission. Consequently, the price paid per kWh was lowered. Producers of renewable electricity with contracts would be paid their bid price instead of a strike price previously. Furthermore, after a lobby from the British Wind Energy Association (BWEA), a sub-band for small-scale wind projects was included, to encourage projects from landowners and developers with limited financial resources (Dinica, 2003). In order to provide time for obtaining planning permission, contracts could be taken up within five years after the awarding. In this way, the hurried character that had characterised the first two tendering rounds was overcome.

The time lag between the second and third NFFO, changes in application procedures and the large number of applicants for the third round brought about insecurity for renewable producers. The changed rules on how to obtain a contract were unclear, and there was uncertainty about whether a next round would be similar and what the future policy after the fifth round would look like (Mitchell, 1995). Adding to the insecurity was the 'levy out clause' and the 'supply out clause'. The first meant that if the fossil fuel levy would cease during the contract period, the RECs would not be obliged to make up the difference between the pool and premium prices. The supply out clause meant that if renewable generation would exceed 25 % of the RECs supply, they would be allowed to refuse the renewable electricity. These clauses placed risks on the shoulders of the producers of electricity from renewables (Mitchell, 1995).

In 1997, after a three-year gap, the fourth tendering round was announced. In terms of procedures, it did not differ much from NFFO 3. The final NFFO 5 was announced in 1998.

Table 5.4 Awarded NFFO contracts for wind power

NFFO awarded contracts in England and Wales

NFFO 1 (1990)	Contracts for 9 wind projects (30 MW). Four of these were for single turbines that were already operating. Five contracts were for wind farms that were yet to be built.
NFFO 2 (1991)	Contracts for 49 wind projects (200 MW). Guaranteed electricity purchase until 1998 at 11pence/kWh.
NFFO3 (1994)	Contracts for 55 wind projects (386 MW). Guaranteed bid price for 15 years, with average contract price of 4.3 pence/kWh.
NFFO 4 (1997)	Contracts for 65 wind projects (792 MW) at average price of 3.5 pence/kWh. (except for the smallest projects)
NFFO 5 (1998)	Contracts for 69 wind projects (856 MW), at average price of 2.9 pence/kWh (except for the smallest projects)

Source: Musgrove, 2003

NFFO: competitiveness impedes implementation

Initial optimism about the NFFO system had been seeping away after 1994, when difficulties in getting planning permission were slowing down deployment. In 1997, when New Labour took office, a renewed enthusiasm was visible. A manifesto had been published that envisaged a 10 % contribution of renewables to the overall electricity supply in 2010. However, enthusiasm decreased again when the fourth and fifth NFFO rounds continued to face problems inherent to the tendering mechanism. There was no penalty for companies who did not realise their contracts. Bidders could bid extremely low, win a contract and not develop the project. Some developers underbid, expecting that the costs of deployment would go down within the five years of extra time that was granted for obtaining planning permission. Others underbid simply because they had no seriously plans for actually realising the project (Mitchell and Connor, 2004). The effect of the extremely low bids was that the higher but more realistic bids were not granted contracts. According to Mitchell and Connor (2004), this system was too competitive, but because underbidding was without any risk, the very low bids did prevent higher bids from resulting in a project. All five Orders faced over-subscription. Once the maximum capacity as defined by government was reached, further development was postponed to a next round. Those who won contracts were secure of long-term purchasing contract for set prices, but many applicants who devoted time, expenses and energy were left with nothing. The low bids and

difficulties in obtaining planning permission hampered swift development.

By the end of 1998 the installed capacity in the UK was just over 330 MW, and in England it amounted to 90 MW (table 5.5). The larger part of the contracts awarded in the fourth and fifth round (table 5.4) have not been developed. By the end of 2000, only 8 % of the onshore capacity that had been contracted under the last three rounds (in both England and Wales) had obtained planning permission (Cleirigh, 2001).

Table 5.5 Cumulative installed capacity levels (MW) and number of turbines

Year	1992	1995	1997	1998	1999	2000	2001	2002	2003	2004
Installed Capacity (MW)	15	72	87	90	104	123	137	155	165	184
Number of Turbines	39	192	218	222	249	271	293	309	313	319

Source: BWEA, 2005a

New Labour, new policies

New Labour committed itself to the international climate change agreements and the international sustainable development agenda. Extensive consultation with industry, consumers and other stakeholders took place, reported on in a range of documents that were published by DTI between March 1999 and March 2001 (DTI, 1999a, b, c, d; 2000a, b; 2001a, b, c). In 2002, the Performance and Innovation Unit (PIU) - a think tank located in the Cabinet office - published a review on strategic issues surrounding energy policy, which served as input for consultation preceding the draft of the Energy White Paper (2003).

All these efforts eventually resulted in a new policy strategy for renewables. The percentage of renewable electricity supplied to consumers was to rise from 3 % in 2002/2003 to 10 % in 2010. DTI optimistically spoke about a ‘win-win-win situation’, in terms of renewable technology development, new jobs and global environmental gains (DTI, 1999a).

The Energy White Paper (DTI, 2003) described sustainable energy policy as resting on an environmental, an energy, an economic and a social pillar. This meant that knowledge and experiences from various stakeholders was to be addressed to come to a comprehensive, long-term energy strategy. A more ‘joined up’ way of thinking and working by different government departments was envisaged. The

enabling and facilitating role of government was still considered important in removing (institutional) barriers for implementation.

A new cost-effective climate change strategy was to benefit both the environment and the economy. The strategy took shape within the context of liberalisation. Key policy goals were formulated in terms of environmental goals, energy supply goals, technological development, industrial expansion, and rural development. Emphasis was placed on delivering renewables to the consumer for an acceptable price. The Renewables Obligation (2002), the Energy White Paper (2003) and the Planning Policy Statement 22 (2004, see section on planning) were all part of this new strategy.

Neta and Betta: towards a more competitive market

The 2000 Utilities Act enabled the introduction of the New Electricity Trading Arrangements (Neta) in 2001. It replaced the Electricity Pool in England and Wales, which was perceived as failing to reflect falling costs and increased competition in the electricity market (DTI, 2003). Neta aimed at a competitive wholesale electricity market in England and Wales. It was based on bilateral trading between producers, suppliers, traders and customers. Via the Neta trading system, generators would sell their electricity, by negotiating a price with supply companies. These would then sell the power to consumers. For using the national grid and distribution system, the supply companies had to pay a use of system charge. The charge was based on the amount of electricity they transported, as well as on the distance between the generator from whom they had purchased the power and the consumers they supplied (BWEA, 2006b).

The Balancing and Settlement Code enabled the National Grid Company to balance supply and demand. On the basis of this Code, producers and suppliers who were producing or consuming too much or too little electricity would have to pay for this through imbalance charges (DTI, 2003). While Neta enhanced the predictability of supply and demand, it worked out to the disadvantage of intermittent generators (like wind power generators) who faced extra costs when participating in the electricity market because of the high balancing prices (Helm, 2002:186). They expressed their concerns, arguing that a reduction in profitability for renewable electricity producers contradicted government policy on the promotion of renewable energy generation. These complaints resulted in a modification of the Balancing and Settlement Code (DTI, 2003). In 2003, a draft was published for the extension of NETA into BETTA: British Electricity Transmission and Trading

Second, suppliers can buy ROCs on the market. Third, suppliers can pay a ‘buyout price’ to make up the shortfall between the amount of certificates they have and the amount they should have. This penalty money is then recycled to suppliers in proportion to their holding of ROCs, at the end of every twelve-month obligation period. The RO has no set price or contract length and is not technology-specific. It is much more of a market mechanism than the NFFO, because it forces renewable electricity producers to take part in the electricity market. The renewable electricity producer negotiates the contract with a supplier. If they agree to a short-term contract, the producer is likely to receive a higher price compared to a situation where the producer opts for a long-term, more secure, contract. Overall, prices paid to renewable electricity producers in the first RO year were significantly higher than those paid in the later NFFO rounds (Mitchell and Connor, 2004).

The value of renewable electricity consists of four elements: the ROC price; the base load electricity price; the climate change levy exemption; and possibly a part of the buy-out funds. The parts that the renewables producer has to negotiate with the supplier are the recycled buy-out funds (of which the generator often receives a portion), the part of the ROC price and electricity price. Of these four revenue streams, the ROC value and the recycled premium depend on the supply and demand on the renewables market. As long as there is a shortfall in ROCs, the recycled buyout premium will be high.

Government set a target of 3% of total electricity to be supplied by renewables in 2002/2003, which was meant to increase towards 10.4% in 2010/2011. In 2005, a target of 15.4% was set for 2015/2016, after which no further increase was envisaged until 2027. The RO was given an artificial start-up, as almost 2 % of electricity supplied by renewable NFFO projects counted as well (Ofgem, 2004; 2005).

Table 5.6 Renewables Obligation order and accredited projects

First RO period (2002-2003)	- 5.5 million ROCs issued, 20 % for onshore wind.
England:	- 42 onshore wind projects accredited ^a (145 MW). Buyout price: £30/MWh (3 pence/kWh).
Second RO period (2003-2004)	- 7.5 million ROCs issued, 16 % for onshore wind.
England:	- 47 onshore wind projects accredited (155 MW). Buyout price: £30.51/MWh

Source: Ofgem, 2004; 2005

^a note that the number of accredited projects does not tell anything about approval or implementation

Central position for the suppliers

The suppliers hold a central and powerful position in the Renewable Obligation system: they have to meet the quota and they are the ones who set the contracts with the producers, based on their assessments of the future market for ROCs and electricity. Since some six large multinational electricity suppliers supply around 70 % of the market, they share a powerful oligopoly (Toke, 2005b). If the renewables supply nears the obligation, the value of the recycled premium will decrease (Mitchell *et al*, 2006). This is not likely to happen in the near future, because at present the supply of renewable electricity is much lower than the demand by suppliers. In theory however, as supply increases, the renewable electricity producers are likely to receive less (Mitchell *et al*, 2006). In addition, in case of an oversupply, the suppliers are likely to purchase ROCs from the subsidiary of their own mother-company, which places other independent producers at a disadvantage. So far the RO has resulted in increased activity in the wind power market (table 5.6). There is debate on how the Renewables Obligation is going to work out in the coming years.

Toke argues that suppliers will make sure that an oversupply of ROCs is prevented. For them, an oversupply would negatively affect the value of the ROCs, and they are better off by making sure that the targets remain unfulfilled. Electricity suppliers can influence the prices through their interventions in the market: they are the main investors in renewable generation and have an interest in keeping up the ROC price. Because of the limited competition, they do not need to supply renewable electricity for lower prices. According to Toke (2005b), the strong influence of the utilities on the ROCs market is a threat to the ambitious renewables targets set by the government.

Opportunities for smaller, independent producers have changed. The NFFO system was too competitive and made it difficult for smaller independent projects to obtain a contract. Practice until now has shown that, because of an undersupply of renewable energy, independent and smaller producers have succeeded in obtaining prices and contracts that are attractive enough to develop projects. In that respect their opportunities have improved compared to the period when the NFFO was in place (Toke, 2005b). On the other hand, independent producers are in a very dependent position vis-à-vis the suppliers. To obtain a loan from a bank in the UK, an independent developer must be able to show a contract with a creditworthy supplier, to ensure the bank a longer-term source of income to pay back for the loan. For wind project developers that are a subsidiary of an integrated electricity utility - including suppliers - it is much easier to obtain finance and contracts, than it is for

independent developers. In addition, especially the smaller projects often face difficulties handling the administrative paperwork, as the RO has rather complicated procedures (Interviews with AEP and Baywind, 2004).

Discussion: competitive strategy to combat climate change

Wind power developments have been largely affected by the context of a changing electricity supply system. After privatisation, the NFFO was introduced to trigger market development for 'non fossil fuels'. In its operation, NFFO was neither related to whether project developers got planning permission, nor to the actual realisation of the project. Implementation lagged in the nineties and many NFFO projects were never realised.

The NFFO did not encourage diversity in the market for wind power development. Energy sector-developers (National Wind Power and PowerGen Renewables) dominated wind project development. Other developers came from engineering and construction companies. Although some new private medium-sized companies came up in the nineties - Wind Prospect and Ecotricity, smaller project developers with limited financial backing were not able to participate, as the system was too competitive. The low cost focus and the absence of a home market resulting from lagging implementation contributed to the demise of the domestic turbine manufacturing industry (Mitchell, 2000).

With the New Labour government taking office in 1998, a market-orientation remained crucial in the choice of a new financial support system for renewables. The Renewables Obligation was expected to result in a price decrease of renewable electricity, but this has not materialised and various studies have argued against the cost-effectiveness of this quota obligation system (Mitchell and Connor, 2004; Toke, 2005b). On the other hand, the RO is less competitive than the previous tendering system, which means that developers no longer need to focus on developing wind projects on the windiest sites only (Foxon *et al*, 2005). The Renewable Obligation has resulted in increased activity and implementation, and the installed capacity level in England has risen to 184 MW in 2004. Moreover, in 2004, planning permission was granted to 12 projects amounting to 99 MW (while being refused for 13 projects amounting to 97 MW (BWEA, 2006b).

At the end of 2004, consultation rounds were held in the light of the RO's review. An extension of the RO from 2010/11 to 2015/16 was proposed. Furthermore, a singly recycling mechanism for UK-wide buyout funds was proposed. Next, measures were suggested to secure the buyout fund in the event of a shortfall. This had occurred in late

2003, when some suppliers had failed to pay their penalties, which had negatively affected confidence in the renewables market. A final issue was the introduction of more flexibility for small generators (of up to 50 kW), by offering them the possibility to opt for monthly instead of annual ROC declarations (DTI, 2004; 2005).

5.3.2 Spatial planning domain

Discretionary planning

Unlike most continental European countries, Britain has a discretionary system of planning. This means that it has historically not been characterised by fixed rules and established routines, but involved a lot of room for changing interpretations of more general guidelines. The local development plan used in England gives less of an indication of what future developments are likely to be, than do zoning systems (in place in Germany and the Netherlands). Local planning authorities have a certain discretion to determine what considerations are material or pertinent to the decision they take. By means of an appeal system that includes the possibility of a public inquiry, local authorities can be held responsible for their discretionary decision-making (Booth, 1999).

Local planning discretion curtailed

In the seventies, the perception that planning policy and regulation was impeding business and hindering economic development became deeply entrenched (Booth, 1999:38). The Conservative administrations that took office after 1979, generally regarded local authorities as wasting time and money and hindering a proper operation of the market. The impact of Thatcherism on the planning system involved a concerted attempt to limit the constraints of the planning system on market development activities.

National government asserted that planners should focus on land use matters only. In addressing economic, environmental, social and infrastructure issues that relate to local land use, they should have a regulatory rather than a strategic role (Vigar *et al*, 2000). After 1979, public expenditures were cut and competition was encouraged through a deregulation of controls on business. Successive Conservative administrations urged local authorities to sell their land and property assets and to promote private investments. The freedom to raise local taxes, to provide grants and to regulate public transport provision was curtailed (EU Compendium, 2000; Vigar *et al*, 2000).

Another trend in the eighties that undermined local authorities' position was that resources were increasingly granted to so-called non-departmental public bodies, which were non-elected agencies directly appointed by central government and the private sector. Power over public investment and over regulatory actions became dispersed among various bodies with often overlapping and conflicting remits, but all "oriented to nationally specified funding and performance criteria" (Vigar *et al*, 2000:10).

Lifting the status of the local plans

By the end of the eighties, various conflicts made clear that discretionary planning could not simply be put in the service of promoting economic growth only. The government realised that development plans may serve to resolve disputes and hence facilitate decision-making processes. The Planning and Compensation Act of 1991 made devising of a local development plan mandatory for local authorities. Moreover, where previously the status of the development plan was to be one consideration among many, the Act stated that the development plan would from now on be the first consideration in planning decisions. The reference to other material conditions was upheld as well, hence maintaining the discretionary character.

Planning policy guidance

Planning policy guidance has become a central feature of the planning system, involving central statements of government policy on various issues and procedures. Since 1992, Planning Policy Guidance (PPG) Notes on various themes have been published, for instance on housing, green belts, transport, etc. These PPGs explain statutory provisions, give guidance to local authorities and others on planning policy and the operation of the planning system, and explain the relationship between planning policies and other policies. Regional Policy Planning Notes (RPGs) are drafted by constituent local authorities of the region and submitted to national government. RPGs are concise documents containing a perspective for the coming 15-20 years on priorities in the area of the environment, transport, infrastructure, economic development, agriculture, minerals and waste. Neither national nor regional guidelines are legally binding, and they can be 'overruled' by for instance a ministerial statement or speech (EU Compendium, 2000).

Local Planning

The local authority (county or district) has to grant planning permission for all developments in terms of building, changes in land use and property. England has one- and two-tiered local authorities. In case of a two-tiered local authority (shire counties), the county adopts a structure plan and the district council devises a district-wide local development plan. In areas with a unitary planning authority, the plan combines the functions of both. A structure plan is a strategic document, with a time frame of ten to fifteen years. It provides a framework for the local development plans. A local development plan (table 5.7), looking ahead for a period of ten years, is more detailed, and it can indicate specific areas that are to be developed or protected. Its objectives, policies and proposals are to be restricted to land use matters. The plan is not legally binding and provides no development rights. However, decisions that are taken must be in line with the plan unless material considerations indicate otherwise. Material considerations that are relevant for planning can result from consultation or policy guidance, Environmental Impact Assessments (EIAs), specific site characteristics etc. In practice, material considerations very often apply because many local plans are out of date.

Table 5.7: Adopting a local development plan

Procedure for adoption of local development plan

- Before adoption, a local development plan is made public, consultation takes place and there is a period of formal objection. The objector has a right to be heard by an independent inspector.
 - The final decision-making power lies with the local authority.
 - Challenging the plan in court is only an option when the procedures have not been followed properly. Moreover, it is very expensive and because of that mainly an option for large interest groups.
 - There is a basic right of appeal (ROA) to the Secretary of State against a decision of the local planning authority on an application. The ROA includes refusal of consent, imposition of unacceptable conditions and the failure of the local planning authority to determine the application in time. Appeals are intended as a last resort, only to be taken up when negotiations with the local planning authority have not resulted in a satisfying outcome. Only the applicant may appeal. There are three ways of appeal: local inquiry, written representation and a planning hearing. Regardless of the form, evidence is gathered from the principal parties involved, statutory and non-statutory consultees and objectors. The legal validity of the decision on the appeal can be challenged in High Court, and the High Court decision can be challenged in the Court of Appeal to the House of Lords.
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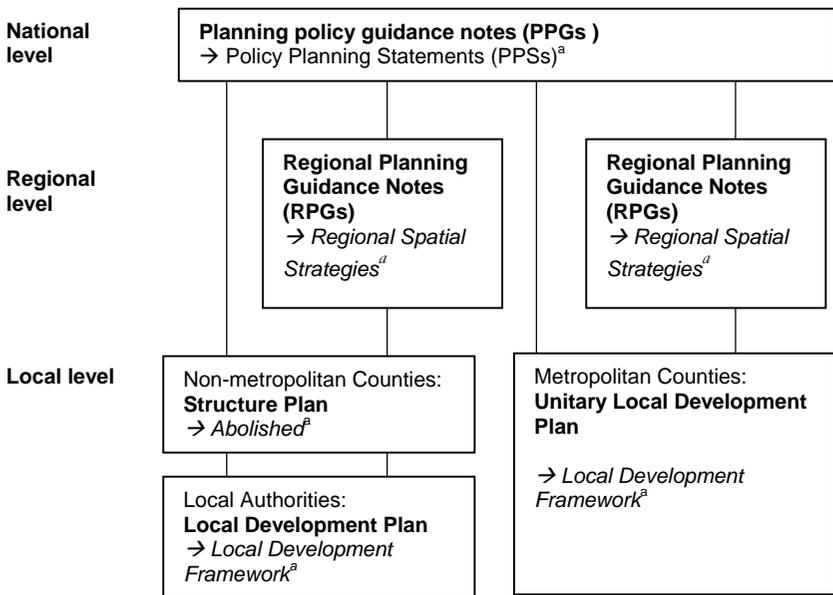
Source: EU Compendium, 2000

The development plan should in principle reflect national and regional policy (EU Compendium, 2000). The Secretary of State has far-reaching

powers to intervene in the local planning process, if he or she thinks that a local authority deviates too much from national and regional policies and plans, without a proper justification that refers to local circumstances. In addition, the plan is subject to both public and central government scrutiny before adoption (EU Compendium, 2000).

Local councillors decide on planning applications and they are advised by professional officers. These planning officers are permanently employed while local councillors are elected members and represent their constituency. Generally, decision-making on land use matters takes place with little involvement of the court. The court is called in only in cases when the meaning of the law is under discussion. There is a right of appeal to central government when planning permission is not granted, and this final decision is not open to challenge, unless the powers given by law are exceeded.

Figure 5.2: Current system of planning and changes resulting from the 2004 Act



Source: EU 2000:50

^a Changes resulting from the 2004 Act are in italic

The planning system is currently under change. Figure 5.2 depicts the old and new situation. *The Planning and Compulsory Purchase Act 2004* amends the *Town and Country Planning Act 1990*. Each of the nine regions in England is to prepare a Regional Spatial Strategy, which will replace the

Regional Planning Guidance. The Structure Plans at county level will be abolished. Instead the county will contribute to the Regional Spatial Strategies. At the local level, the Local Development Framework will replace the Local Development Plan, devised by the local planning authority. Local Development Frameworks will be more succinct, and will be reviewed every two years (instead of every ten years for the local development plans at present).

The regional tier: fragmented competences

In 1994 the central government established the Government Offices for the Regions, in reaction to the European Commission's pressure for setting up a regional tier and a regional programme to serve as a framework for the implementation of the EU structural funds. The Government Offices for the Regions are part of central government, delivering government programmes regionally and locally, and accountable to ministers (Library Research Paper, 2002).

Various types of non-departmental public bodies (NDPBs) have been created and partly funded by government departments over the years. Being formally independent of the central government, they provide it with policy advice. Examples are English Nature (1991), the Environment Agency (1995) and the Countryside Agency (1999). Their influence is considerable through their role as statutory consultees on matters within their remit.

Following devolution in Wales, Scotland and Northern Ireland in 1999, the question remained as to how England should be governed in a devolved UK. The government established Regional Development Agencies: business-led NDPBs, designed to promote economic development in a region. Furthermore, non-elected Regional Assemblies were established, initially to scrutinise the work of the Regional Development Agencies, but they soon took up a wide array of other functions. The Regional Assemblies include local authority councillors, social and economic partners, and an executive staff. Although the scope of their activities has gradually widened - to include among others the devising of regional strategies on renewables - their overall impact remains limited as they have few resources and no legal powers (Interview with North West Assembly, 2004). There are no regional elected governments. Moreover, the NDPBs are not democratically accountable, nor are the Government Offices for the Regions. In the autumn of 2004, a referendum was held where people could speak out in support of a directly elected regional government in the North East. A majority voted against.

Planning a wind farm

For wind projects, an Environmental Impact Assessment (EIA) investigates specific issues like landscape, noise and wildlife impacts of a proposed scheme. The results are published in the Environmental Statement, which describes the significant environmental effects and considers mitigation measures (ODPM, 2004b). The 1999 Environmental Impact Assessment Regulations set out which developments may be subject to an EIA. For wind power, an Environmental Statement is usually needed when a project proposes more than three or four turbines (although this is not a fixed standard), or when the project is planned in a sensitive area (BWEA, 2001). A developer has to reckon with sites that are designated under the Habitats and Birds Directives (Natura 2000 sites), as well as with nationally designated areas like National Parks or Areas of Outstanding Beauty. The Environmental Statement is usually delivered by the developer, prior to the permission procedure. The submission of an Environmental Statement must be advertised and copies made available for the public and statutory consultation bodies (e.g. English Nature) (SDC, 2005).

A planning application for a wind project should include sufficient details so that the authority can assess the effect of the development on the area. For projects smaller than 50 MW, two permits are needed. First, project developers apply to the local authority (district council, county council or a unitary authority) for planning permission. The planning officer reviews the application, and checks if the proposal is in line with national, regional and local planning policies. Next, the Environmental Statement is considered, if necessary.

Either the developer or the planning authority advertises the application in the local press and citizens and organisations are invited to present their views. Both individuals and organisations can make representations, which must be taken into consideration by the planning officer. At this stage only is there a legal obligation to consult the public. However, if people live near to where the proposed project is to be realised or if the Environmental Assessment process indicates that people may suffer negative impacts, they need to be contacted at an earlier stage (SDC, 2005).

Having gathered all relevant information and viewpoints, the planning officer writes a report, which includes a recommendation to grant or refuse planning permission. The councillors of the Planning Committee take the final decision and are not required to follow the officer's recommendation. Moreover, they can also postpone the decision and ask the developer to provide more information, e.g. about the impact of the project on wildlife. If planning permission is refused,

the applicant can lodge an appeal. Appeals are dealt with by the Planning Inspectorate. The inspector can overrule the local decision if he or she considers that this decision has significantly departed from national, regional or local planning policy, or when the decision has not fairly assessed the balance of national or local environmental, social or economic considerations (SDC, 2005).

The second permit - next to planning permission - is needed to arrange for connection to the grid and generally is not difficult to obtain. For projects with the size of 50 MW or more, the DTI instead of the local authority grants planning permission. In England however, most onshore wind farm applications concern projects less than 50 MW.

Planning obligations and planning conditions are agreements between local authorities and developers, negotiated in the context of granting planning consent. The former are legally binding, the latter are not. Through these agreements, developers contribute towards the infrastructure and services that local authorities believe to be necessary to facilitate the proposed development. Planning obligations for wind projects are not uncommon and often the council negotiates about community benefits, which can be an amount of money to be spent on for instance energy efficiency measures. The system of planning obligations has been criticised for its inconsistency, unfairness, and lack of transparency, and there are plans to change it (D'TLR, 2001). Negotiations can take quite a long time, up to a year as from the application for planning permission, and the British Wind Energy Association has criticised the resulting delay for project implementation (BWEA, 2004b).

Early wind farm planning problems

When, in the early nineties, wind projects were proposed, they met with a planning framework that was used to dealing with large-scale centralised coal and nuclear power developments. Local authorities had little experience in deciding on planning applications for energy facilities, because applications for conventional large fossil fuel plants were decided on at national level (McLaren-Loring, 2004).

To remedy this situation, a Planning Policy Guidance Note 22 on Renewable Energy (PPG22) was adopted in 1993. Although PPG22 expressed that local authorities should adopt a 'presumption in favour' with regard to wind power development, it stated at the same time that local authorities should carefully weigh the multitude of interests involved (local, regional and national as well as global): "Authorities will need to consider both the immediate impact of renewable energy projects on the local environment and their wider contribution to

reducing emissions of greenhouse gases.” (DoE, 1993). Material considerations to take account of, apart from the PPG22, included the various other PPGs that are relevant for wind power deployment, e.g. those on Green Belts, Countryside and the Rural Economy, Planning and Noise, Nature Conservation etc.

At the local level, PPG22 was criticized for being too general and for offering insufficient protection to designated areas. Local authorities were expected to adopt a pro-wind power stance when deciding on applications, while PPG22 provided inadequate guidance on how to deal with conflicting interests (e.g. between the national need for renewable energy and the conservation of valued landscapes) (Hull, 1995b, Owens, 1994). When, from 1991 onwards, the Non Fossil Fuel Obligation started to encourage implementation, the development of wind farms raised controversy in England. The tendering system encouraged developers to search for the most competitive sites, often coastal or up-hill areas, which had so far been kept free of industrial development because of the landscape value attached to them (McKenzie Hedger, 1995). The appearance of wind farms on these sites raised concern among members of the public and opposition from landscape protection, conservation and amenity groups. Partly as result of this local opposition, several projects were refused planning permission (Walker, 1995:56). Apart from landscape concerns and unclear national planning policy, inadequate local involvement added to these early controversies (Walker 1995). Local support for wind power was put to a severe test in this way.

At the national level of government, institutional barriers for wind power implementation - apart from the limits set by designated and protected areas - were mainly understood in terms of local planning bottlenecks. The Renewable Energy Advisory Group (REAG) argued that nimby attitudes were a cause of lagging implementation. DTI regarded local planning authorities’ reluctance to facilitate implementation as resulting from their lack of awareness and knowledge (DTI, 1994). Awareness building, coordination and provision of knowledge to a wide range of actors (local authorities, the general public, decision-makers and political actors) were proposed to mobilise support for implementation of wind power (DTI, 1994).

New guidance to improve siting

In 1999, DTI acknowledged that siting was problematic and that PPG22 had been of little help (DTI, 1999d). A review was undertaken of the contribution that the planning system could make to deliver the target for renewables. In the process toward the Renewables Obligation, the

Energy White Paper and the new PPS22, problems identified were a lack of public acceptance; a lack of awareness and knowledge among local authorities and the general public; and too little involvement of the financial community. To improve this situation, suggestions were made towards information dissemination, a stronger role for the regional level, guidelines for project developers, and collaboration between government, industry and environmental organisations. Although emphasis still lay on large-scale wind power, the potential of small wind installations for local use on farms and in communities received attention as well. Community projects could contribute to social acceptance and, consequently, obtaining planning permission would be less problematic. The DTT's review also elaborated on the role of the project developers: they should involve the local authorities, environmental organisations and local people, preferably before submitting formal planning applications, e.g. through informal discussions about the location, the design and the local benefits. In addition, much attention was given to regional and local planning and to actors involved at those levels.

In the process leading up to the new PPS22, many actors were consulted. The British Wind Energy Association (BWEA) was successful in its lobby for a 'criteria based approach' instead of the 'areas of search approach' that was initially favoured by the Office of the Deputy Prime Minister, i.e. the planning ministry. A criteria-based approach leaves the choice of the site up to the developer. Local authorities adopt criteria (in line with national policy for wind energy) on the basis of which they assess applications for planning permission. For landscape protection organisations like the Council for the Protection of Rural England this was a disappointment. They had argued for an 'areas-of-search-approach', to enable the designation of areas that would suffer least impact and to be able to account for accumulative impacts.

The new PPS22 urged local authorities to adopt a strong presumption in favour of wind power. Where local authorities placed too many restrictions, the national Government would intervene in the planning process. PPS22 went further than PPG22 in regarding environmental and economic benefits as a material consideration, and it placed more emphasis on community involvement. Moreover, the Regional Spatial Strategies, which would replace the Regional Planning Guidance Notes, were required to include regional renewable energy targets (ODPM, 2004a).

New planning guidance: unlikely to solve conflicts

Throughout the past decades, the planning system faced criticism from developers - including wind project developers - for being supposedly

anti-development. Generally, the latter part of the nineties witnessed increasing national intervention in the planning system, to ensure that local planning would not undermine national policy targets or overall economic competitiveness (Vigar *et al*, 2000:11). It also saw the creation of various bodies and agencies between central government and the local authorities, that were oriented to nationally defined policy goals and performing in a democratically unaccountable manner.

The direction in which targets and priorities are set, has been from the central government downwards to the local level. With regard to environmental concerns, a respondent from a local landscape protection organisation, the Friends of the Lake District, commented: “The British planning system is weak on integrating environmental issues. We tend to let the market determine things and then regulate the worst consequences” (Interview with FLD, 2004).

The approach in early wind project development created reluctance among local authorities and concerns among local residents. Project developers took too little account of local planning, and environmental and landscape interests. Participation in project planning - prior to submitting the planning application - was rare, financial participation exceptional.

In most cases where planning applications have been refused, the planning authorities have done so with reference to landscape impact. The strong grass roots tradition in landscape and countryside protection becomes visible here. Toke (2005a) has shown that in case of fierce local opposition, local councillors have been more inclined to refuse planning permission. Once local opposition was backed by organisations like the Council for the Protection of Rural England (CPRE), the chances of success were even less (Toke, 2005a). Nevertheless, a project developer can appeal against the decision to refuse consent. With the new PPS22, it is likely that the project will get consent after all because the inspector will more heavily weigh the national policy context and will judge the project while keeping in mind the ‘presumption in favour’ that the PPS22 explicitly argues for. Wind project developers and the BWEA are generally positive about the PPS22, unlike CPRE, which has commented: “landscape character, tranquillity, are not likely to be determining criteria in decisions on planning applications. They will be secondary criteria and that is our problem” (Interview with CPRE, 2004).

The latest PPS with its presumption in favour of wind power implementation is not likely to solve conflicts at the local level of planning. On the other hand, recent years have witnessed an increasing attention for local planning issues. National and regional governmental bodies have taken measures to support local planning authorities in

dealing with wind power proposals. The BWEA has organised planning workshops in various regions and in this way reached at least a thousand planners and councillors (Interview with BWEA, 2004). Several reports have been written that work out strategies to improve community participation through early involvement and by enhancing community benefits from wind power development (CSE, 2005; SCD, 2005).

5.3.3 Environmental policy domain

British environmental policy has overall been reactive, pragmatic, case-by-case and not based on an elaborated strategy. It has been guided by economic efficiency considerations (Jordan *et al*, 2003). There has been a preference for voluntary agreements, general guidelines and informal standards over fixed standards and legislation. Central government has provided the broad regulatory framework and local officials have been responsible for implementation. This has involved consultation and negotiation between polluters and regulators within closed, exclusive policy communities of experts.

In the eighties, in reaction to criticism of the lack of transparency in environmental policy-making, the locus of control was shifted to officials at higher levels, to adopt a more integrated view of problems. Various local agencies were gradually brought together in a national Environment Agency (1996), in order to arrive at a more cost-effective and transparent regulation (Jordan *et al*, 2003; Weale *et al*, 2003).

In 1989, the Environmental Department commissioned the Pearce report, became internationally known for its elaboration on environmental taxes. In 1992, the conservative government declared its preference for economic instruments like taxes over regulation, but this stated policy was not translated into a successful adoption of such instruments (Jordan *et al*, 2003).

In the nineties, the salience of environmental considerations in policy-making increased. International pressures to address climate change, air pollution and acidification contributed to this trend. Hence, concern for the environment became somewhat institutionalised in the nineties, and this affected the perceived role of planning. In addition to the traditional remit of landscape and countryside protection, planners were increasingly supposed to take account of the environment in the 'widest sense' - including global warming and renewable energy issues. Their task was to negotiate potential conflicts between the environment and economic development.

More recently, since the advent of New Labour, renewable energy policy has become part of the larger, international commitments

to sustainable development and fighting climate change, which go together with efforts to come to a less sector-oriented and more integrated strategy. Market-based instruments for tackling environmental problems have been preferred, in line with the neo-liberal market approach. Hence, wind power - a near-market technology - has gained more political priority. Yet, although the salience of environmental concerns has risen, the approach has remained characterised by the importance of cost-effectiveness and market-based instruments.

Institutionalisation of environmental concern

In the seventies and eighties, increasing environmental concern triggered the rise of a politically active environmental movement, but their effect on innovations in environmental policies and their access to the formal political arena remained limited (Dryzek *et al*, 2003). Nor did environmental and anti-nuclear activism translate into citizen or grass roots initiatives towards renewable energy projects.

Britain has several organisations originating in the early twentieth century that reflect a strong tradition in landscape and nature conservation, e.g. the Council for the Protection of Rural England, the Royal Society for the Protection of Birds, and the Royal Society for Nature Conservation. An important part of the British environmental organisations is predominantly concerned with countryside protection, wildlife and historic buildings (Weale *et al*, 2003). This tradition has translated into groups, networks and organisations that are active at several levels, including the grass roots level. As we have seen, it has inspired opposition against wind projects when these were considered harmful in their impact on the landscape.

In the nineties, mainstream environmental organisations have responded to opportunities to participate in consultative networks with government. In spite of extensive consultations, their influence has remained limited. As Dryzek *et al* (2003:72) comment: “At most it produces marginal gains, at worst it involves blatant co-optation, be it in public inquiries with preordained conclusions or consultative processes that produce no effect on policy”. Still, the environmental movement has accomplished more than the Green Party, which was unable to gain significant influence throughout the eighties and nineties, because the British electoral system makes it very difficult for minority parties to secure parliamentary representation (Dryzek *et al*, 2003).

5.3.4 Discussion: three domains converging?

The prevailing wind power policy frame in the seventies and eighties was rather technocratic, with an emphasis on large-scale applications. Renewable energy policy as a whole was further dominated by ideas of cost-effectiveness and commercialisation. The overall policy strategy was in line with the energy system rationale of large-scale energy supply within a changing context of privatising markets.

Policies devised within the energy domain were largely unconnected to the daily practice of spatial planning at the local level. The NFFO encouraged wind power development at lowest cost. Hence, this support system effectively kept actors with limited financial backing from developing wind projects, while energy sector developers were in the best position to secure contracts. Throughout the nineties, government policy did little to encourage a greater diversity in project developers or to encourage locally owned wind projects, and grass roots or locally based initiatives remained limited to a few. This system created rising controversy and reluctance among planning authorities, which hampered implementation. All in all, the competitive tendering system has undermined implementation achievements.

Local planning had traditionally been concerned with issues concerning landscape and amenity. Increasingly, local authorities became stuck between on the one hand, national policies and targets, and on the other hand, local concerns and local political struggles around wind projects. The outcome of such local political decision-making, was that they often refused planning permission when there were local concerns about landscape and amenity impacts, especially when represented through a strong local network, this to the annoyance of wind project developers. The latter, however, contributed to the conflict by not taking local concerns seriously, which only strengthened the image of wind project developers as big companies that are only after profit. Both policy makers and the upcoming wind energy policy community paid little attention to how energy policy, planning and environment were to come together in a strategy for implementation.

In 1998, New Labour proclaimed its cost-effective climate change strategy, involving the effort to combine a market oriented energy policy and environmental policy. While this policy frame appeared to integrate environmental, renewable energy and planning aims, the institutional framework was first and foremost determined by the Neta arrangements for a privatised energy market. The oligopoly that has resulted from liberalisation prevented the establishment of a level playing field in wind power development. Integrated energy utilities have

dominated the energy market, where they act as generators (of wind power), suppliers and retailers.

There has been attention for the developers' approach and local planning issues, but more collaborative approaches have not been institutionalised. The extent to which developers engage with the local community is a matter of choice, and most seem to prefer consultation on ready-made plans to participation at an earlier stage. The contradictions between the energy policy domain and that of spatial planning have not been resolved by the new RO or the PPS22, which both argue for a stronger assumption in favour of wind developments.

5.4 Policy communities

Early years: universities and companies

In the seventies, pioneers in wind energy technology worked at various university groups. They met regularly under the auspices of the Intermediate Technology Development Group, founded by Dr Schumacher - the radical economist well-known for his *Small is Beautiful*.

In addition to these gatherings, several meetings took place in 1978 between the universities, industry representatives and government. The government was hesitant to provide funding to these university-based researchers. At one of the meetings, a branch association was set up: the British Wind Energy Association (BWEA). The Central Electricity Generation Board (CEGB), the Energy Technology Support Unit (ETSU) and British Aerospace were invited to join in. Following on that, the establishment of the BWEA was celebrated at the CEGB's headquarters in London in July 1978. Its objectives were information dissemination, providing policy advice, the setting up of a database of wind power research and project information, and facilitating international exchange and cooperation (Musgrove, 2003).

Hence, although wind power enthusiasts had gathered for some time at Schumacher's institute, the network that took shape did not concentrate on small-scale concepts. From its inception, BWEA members largely came from university engineering departments, engineering and construction companies, industry, and the incumbent energy sector, which resulted in a large-scale and strong technical-industrial focus.

Early years: renewables in the margin

The Energy Technology Support Unit (ETSU) had been established in 1974 to manage the renewable R&D programme. In terms of staff, it was a subdivision of UK Atomic Energy Authority (Toke, 1998). Another influential body in these years was the Advisory Council on R&D for fuel and power (ACORD, established in 1960), which consisted mainly of representatives from the energy sector, the Atomic Energy Authority, industrialists and academics. These bodies, together with the CEBG, had a strong influence on wind power policy. After the second oil shock, the CEBG increasingly took a pro-nuclear stance, causing debate among specialists and anti-nuclear environmental groups (Cheshire, 1996). The evolving network around wind energy had difficulties in garnering support. Within the BWEA, wind power adepts had to cooperate with one of the main advocates for conventional and nuclear power, the CEBG.

In the seventies and eighties, government financial support for renewables was a fraction of the budget spent on nuclear power. Reports from Energy Select Committees - consisting of members of parliament with the task to scrutinise policies of the main government departments - in 1977 and 1984 criticised the Department of Energy for its policy approach on renewables. It criticised the limited R&D funds available, the focus on early commercialisation, and the changing assessments as to which technology was promising. Furthermore, ACORD was regarded not the proper body to advise on renewables, because of its strong connection to fossil and nuclear interests. The Committees called for an independent advisory body that would deal specifically with wind energy. In response, the government appointed more academics in ACORD (Toke, 1998). Criticism from the Select Committees of the Department of Energy continued until the former's abolition in 1992. One of the last comments made by the Select Committee in 1992 stated that “ (...)it is difficult to regard the history of renewable R & D funding in the UK as other than a history of volte faces, premature judgements and plain errors.” (quoted in Elliot, 1997:47).

By the end of the eighties, government started to take wind power more seriously than before. The Renewable Energy Advisory Group (REAG), established in 1991, had members more sympathetic to renewable technologies than the general membership of ETSU and ACORD. ETSU continued to provide management, technology transfer, strategy and evaluation services for policy. REAG criticised ETSU for being too close to the nuclear industry (REAG, 1992).

Wind industry: unable to beat the Danish

Around 1989, when the British wind turbine technology was still in the early phase of developing a few prototype turbines, more than twenty British companies were involved in wind energy technology and development. Some of them looked internationally for markets, because at home a commercial market for wind power was lacking. Howden & Co, Wind Energy Group (WEG), and Vertical Axis Wind Turbines (VAWT) were at the forefront, leading the development of medium-sized turbines. Marlec Engineering Company was selling small turbines internationally. In 1989, DTI set up the National Wind Turbine Centre, to provide assistance and advice to the industry, and it had a test field near Glasgow (Musgrove, 2003). After 1989, National Power and WEG established National Wind Power Ltd. National Wind Power's first three projects had used WEG turbines. However, WEG could not compete with the Danish turbines. Around 1996, National Power had become the full owner of National Wind Power and the Danish NEC Micon had taken over WEG (Musgrove, 2003).

James Howden, WEG and VAWT are no longer around, nor is National Wind Turbine Centre. Mr. Musgrove, himself belonging to the pioneers in technology development, commented: "All three effectively fell victim to the UK Governments early obsession with researching and developing multi-megawatt technology prototypes (rather than getting medium-sized turbines in the ground) while the rest of the world forged ahead using existing technology to get their domestic wind markets up and running successfully" (Musgrove, 2003:36).

Consolidation of large wind players

Back in the eighties, the CEGB had dominated the direction taken in turbine technology development, manufacturing and project development. National Power and PowerGen established National Wind Power and PowerGen Renewables, which are responsible for most wind projects in the UK, with PowerGen on top in England. In 2004, both were taken over by German-based internationally operating utilities. PowerGen became part of E.ON (E.ON Renewables UK). National Wind Power, now Npower Renewables, was incorporated by RWE.

Other important developers come from British construction and infrastructure engineering industries that have been active in wind power since the early years. New entrants in the nineties were companies like Wind Prospect and Ecotricity. Wind Prospect, a turnkey developer, focuses on medium-sized projects (8 to 12 turbines) and has increasingly adopted a strategy of early involvement of local stakeholders. In various projects, e.g. in Cumbria, it works together with E.ON

Renewables/PowerGen, but it also collaborates with Baywind Cooperative. Ecotricity, taking a third place when it comes to ownership of English wind farms, is a green electricity company selling and investing in clean energy. Local ownership through farmer projects of cooperatives is rare in England. Halfway the nineties, the first wind cooperative Baywind started two projects. Since the adoption of the Renewables Obligation, some more community projects have been planned. Moreover, in 2002, Baywind established Energy4All, in order to help extend community ownership of electricity generation with renewables. Energy4All offers services related to the whole development trajectory of a wind farm. Although the BWEA has largely represented the bigger players in wind power, in 2004 it established a ‘Small System Focus Group’, to deal with issues related to small wind energy in order to encourage a wider application of small wind power (BWEA, 2004c).

Collaboration between the wind sector and environmental organisations

In 1997, the BWEA, frustrated with the lack of any clear post-NFFO support for wind energy, launched its “Switch onto Wind Power” campaign together with Friends of the Earth (FoE). In their struggle against global climate change, Greenpeace UK, World Nature Fund (WWF) and FoE became active campaigners for wind energy, collaborating with the BWEA and the wind industry. In 2003 Npower and Greenpeace launched the “Npower Juice” through which consumers can purchase green electricity (hydro, wind, solar) for the same price as conventional electricity. In the same year, FoE, Greenpeace and WWF launched the “Yes2Wind” campaign (www.yes2wind.com), providing information and resources to the public to support wind farm proposals locally. It was an explicit attempt to counteract local opposition by encouraging local proponents to actively support wind power, and to speak out as loudly as the opponents do. A similar attempt at the national level was undertaken in the “Embrace the Revolution” campaign, initiated by the BWEA in September 2004. Their website (www.embracewind.com) quotes well-known personalities that are supportive of wind power, providing a counterweight against the equally well-known spokespeople of Country Guardian, the national organisation that opposes wind power.

The other environmental agenda: landscape and countryside

In the course of the nineties, organisations like the Council for the Protection of Rural England (CPRE), the Council for National Parks and the Ramblers’ Association became more outspoken and critical about the way the wind turbines were being sited in valued landscapes. The CPRE

was founded in 1926. It has 60,000 members, over 200 district groups and county branches while many local amenity groups belong to the CPRE as well. Hence, it campaigns at national, regional and local levels in order to protect the English countryside. CPRE regards itself as a conditional supporter of wind power. Local branches however oppose wind projects if they are convinced that the project's benefits do not outweigh the drawbacks. For instance, the CPRE branch Friends of the Lake District (FLD) has opposed 50 % of wind farm proposals in the county of Cumbria (Interview with FLD, 2004). The FLD "strongly recommends that all proposed wind turbine developments be considered not only in terms of economic viability and potential for energy generation, but also in terms of their possible impact upon residents and their local tourist economy, the landscape and on visitors" (Interview with FLD, 2004). There is little cooperation with national environmental organisations and in the Lake District in Cumbria, the issue of wind power has been a source of contention between the FLD and the local branch of Friends of the Earth.

The Royal Society for the Protection of Birds (RSPB), as well the semi-public agencies like English Nature, limit their involvement to advising on ecological impacts on birds and flora and fauna, and do not take part in the discussion about landscape values. When they argue against a project or disapprove of the quality of an Environmental Statement, they base themselves on scientific studies and European Law (Birds Directive, Habitat Directive).

The battle against wind turbines

In 1992, in response to the first wind farm developments, Country Guardian started as a national campaign against the perceived destructive impact of wind turbines on British landscapes. The organisation provides information and advice to local action groups that oppose wind projects in their vicinity. Country Guardian has some 300 members (including representatives of action groups) and has helped in the development of a network that includes local initiatives, individuals, scientists and opponents nationally and internationally. The strategy of Country Guardian has been rather outspoken, and it has been successful in gaining a lot of media attention. "Rape of the countryside", "planning wars" are just two examples of rhetorical phrases used by the organisation in their battle against wind power. Recently, another national initiative has been set up, the Renewable Energy Foundation, which has declared itself in favour of all types of renewables, except wind power.

Local action groups are manifold; in Cumbria almost every new wind scheme faces an opposing local group. Their motivation is not always similar to that of Country Guardian. Where Country Guardian opposes any wind farm, local groups oppose specific projects. They are not necessarily as fundamentally opposed to wind power as Country Guardian. At the same time however, they do benefit from the network and information provided by Country Guardian.

CPRE and its branches do not cooperate with Country Guardian, but CPRE's local branches at times provide local opposition groups with information.

Government performance in shaping a policy community

Government policy has throughout the years been mainly responsive to the wishes of the larger players in the wind power market. It has not encouraged more locally based projects and given little attention to the increasing concerns at the level of implementation. As such, it has not contributed to the formation of a diverse wind power policy community, nor has it contributed to the mobilising of support at the level of implementation (table 5.8). Although DTI undertook a more extensive stakeholder consultation, the new policies were mainly in line with the wishes of the BWEA. The main concerns of organisations like the CPRE - also extensively consulted - have not been taken away with the new PPS22 and the RO.

Over the past years, efforts at national level have been undertaken to arrive at a less sector-oriented and a more joined-up approach. Accordingly, officials from various departments now gather in joint committees to discuss such strategies. The Sustainable Energy Policy Networks (SEPN) has been set up, a network of government departments, devolved administrations, regulators and other organisations that are jointly responsible for implementing the Energy White Paper. Another initiative is the Renewables Advisory Board (RAB), which gathers actors from industry, government departments and other agencies to discuss the various perceived barriers to renewables.

Table 5.8 Mobilisation of support

	70s-80s: No grass roots	1991 to 1998: Tensions rise	After 1998: Tensions continue
Grass roots wind power initiatives	Virtually absent	First cooperative wind project in 1996	Efforts to increase cooperative projects
Grass roots action against wind	Strong tradition of landscape protection	Strong landscape tradition inspires opposition	Strong landscape tradition inspires opposition
Wind power sector	No connection to level of implementation	Dominated by e-sector, building up lobby No connection to level of implementation	Strong lobby No connection to level of implementation
Conventional and nuclear energy sector	Not supportive of wind power	Conventional e-sector ^a developers dominate	Conventional e-sector developers dominate
Environmental interests	No grass roots energy activism	Actively pro-wind	Actively pro-wind
Nature & landscape interests	Strong tradition of landscape protection	Critical of wind power, but not fundamentally opposed	Very critical of wind power, but not fundamentally opposed

^a E-sector: conventional energy sector

Strong policy community without local support

Support for wind power implementation has been mobilised through linking up with the established energy sector. The price paid for this marriage has been a profound influence of the conventional energy sector in this network. The institutional and political context has changed and the current wind energy community has broadened, involving different types of companies.

Halfway the nineties, the BWEA was still small, research-driven, with around forty members. However, in the following years it grew into a large renewable trade associations with over 280 company members and hundreds of individual members. Their remit involves matters ranging from finance, grid issues, lobbying, publicity and planning issues (Hill, 2003:103). A coalition of larger electricity company subsidiaries, construction and engineering companies and new entrants (somewhat greener en more into local involvement) have been successful in building

up a strong base through the BWEA. They have linked up with the environmental movement and their policy leverage has been impressive. Yet although a unified and influential policy community has taken shape around wind power, it has mainly focused on mobilising support at the national level of policy-making.

The wind power policy community has failed to mobilise support among local actors, either through planning participation or financial participation. The absence of locally based initiatives and projects has contributed to this. An exception is Baywind, which is member of the BWEA but advocates a very different wind power implementation strategy than do the BWEA and most of its members. While the latter regard community projects as additional and helpful to enhance social acceptance, Baywind envisages a future in which most new projects are community-owned. Yet even though community projects by now often figure in DTI and BWEA publications, and there is in fact more attention for the need to improve the relationship between developers and local level stakeholders, this does not reflect the aim of establishing a new practice on a large scale.

The conflict between on the one hand Country Guardian and local anti-wind groups and on the other hand the BWEA, Greenpeace, FoE, and developers, has flared up in recent years. Struggles at the local level of wind power implementation have become part of a national debate. Both sides bring up their own ‘celebs’ and vie for media attention. The polarised debate brings conditional supporters like RSPB, CPRE and local branches, in a sometimes-awkward position. It can be difficult to put across their message without being pushed in either the pro or anti camp (Interview with RSPB, 2004).

5.5 Institutional capacity building: incomplete

An early network had to struggle hard to get the government to provide support, for wind power was not yet considered promising. University groups and engineering and construction companies reached out to the conventional and nuclear energy network. Throughout the nineties, government policy did little to encourage a greater diversity in types of project developers, and grass roots or locally based initiatives remained limited to a few. This was also due to the absence of local energy activism in the shape of grass roots renewable projects. Grass roots in landscape tradition, on the contrary, prompted a heightened awareness as well as concerns about the impact of wind turbines. Resistance rose early and has only increased over the years.

The stories that were presented at the beginning of this chapter reveal that the most contentious issues relate to the impact of wind turbines on landscape values and quality of place, to the involvement of members of the local community in project planning and to the distribution of economic benefits. The *Local community*-story and the *Steel monsters*-story criticise the idea that wind power represents a public interest that supersedes other (local) interests. The *Ambitious targets*-story demonstrates that reasons for resistance at the level of implementation are easily attributed to a lack of awareness, resources and willingness from the side of local authorities and other stakeholders. Although there has been no inquiry into local planning difficulties as perceived by stakeholders at the local level, the legitimacy of the arguments brought up against wind projects has nevertheless been discarded. The overall strategy to improve local social acceptance of wind power has been through information dissemination and education.

The wind energy policy community has warmly applauded the latest policies as these are expected to finally enable accelerated implementation. Possibly, the new policies will result in short-term improved implementation. However, at the local level of implementation the contradictions between the climate change strategy, wind power implementation, local and landscape values and growing anti-wind sympathies are not likely to become less. The strategy of mobilising support for wind power has discarded the question of how to embed wind power at the level of implementation and at the level of the local community. Little capacity has been built for cooperation and problem solving at the level of implementation. Capacity building was formulated in terms of prioritising wind, awareness building and information dissemination, stakeholder consultation, clear guidance and policy and recurrent evaluations.

Recently, efforts have been undertaken to encourage developers to involve stakeholders in the process and more attention has been given to the potential of locally based projects. However, the emphasis remains on reaching ambitious quantifiable targets first and foremost, and it is unlikely that more locally based practices will become institutionalised. In fact, as *Ambitious targets*-story shows, even though community projects are still largely viewed as potentially useful in gaining social acceptance, local ownership is not regarded suitable to reach the targets. However, should the RO turn out to facilitate the development of community projects, this may improve the situation.

Institutionalising capacities for wind power implementation involves capacities for cooperation and problem solving at both national and local levels. The predominance of economic considerations, together

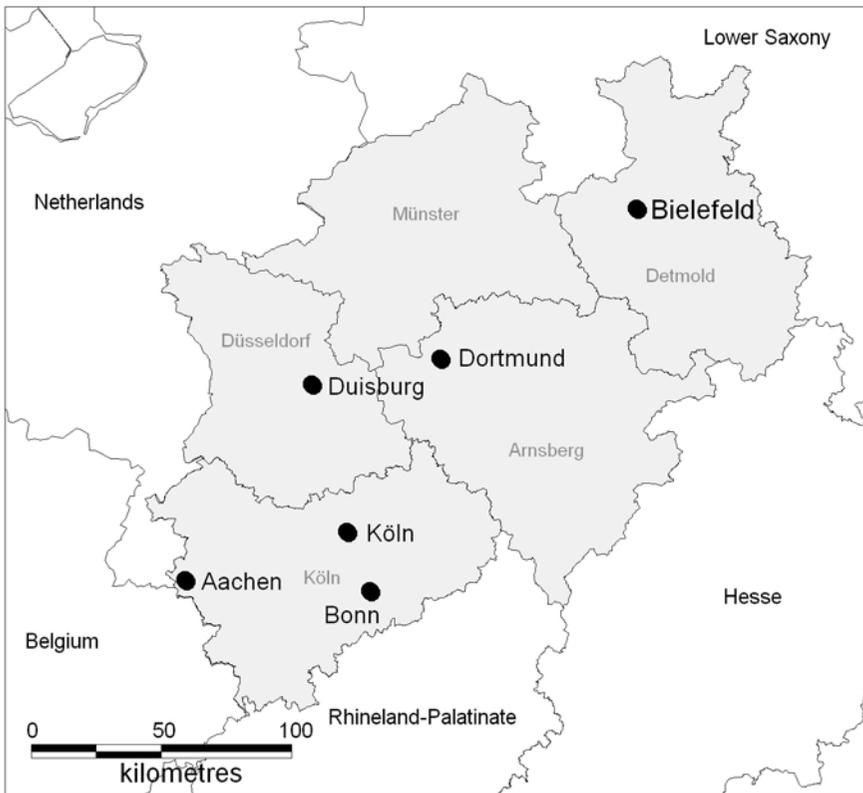
with the exclusion of relevant stakeholders from ownership and participation has limited mobilisation of support for wind power implementation as an acceptable environmental solution. Wind power implementation has not become embedded within existing practices and routines of society and institutional capacity building has been limited and incomplete.

6 Wind Energy in North Rhine-Westphalia

6.1 Introduction

This chapter addresses the case of North Rhine-Westphalia (NRW), within the broader German context. This land-locked industrial state in the central western part of Germany borders the Netherlands and Belgium (map 6.1).

Map 6.1 North Rhine-Westphalia and its districts



NRW, sometimes called the power station of Germany, produces one third of German gross electricity production - mainly with coal and lignite. In 2003, 3.2 % of total electricity generation in Germany was from wind power (IEA, 2005).

In 1957, NRW was hit by a first coal crisis, caused by the supply of cheaper oil. A downward trend, accompanied by a decline in the steel sector in the seventies, resulted in many job losses. Massive subsidies have prevented a total collapse of the coal sector until today (Blotevogel, 2003).

Formerly known as the ‘coal state’ of Germany, NRW has attempted to transform itself into the ‘energy state’: *NRW Energieland* (MWM TV, 1998). Though densely populated and boasting only moderate wind conditions, its record of wind power implementation has been impressive. Until 2004, NRW ranked third among the German states with the highest installed capacity levels. The following account of institutional capacity building shows that although this expansion was possible because of a successful mobilisation of support throughout the years, wind power implementation has increasingly become a subject of contention.

6.2 Stories on wind

If successful implementation is measured in terms of installed capacity, no one will dispute the German or North Rhine-Westphalian success. However, an analysis of interviews with respondents and of stakeholders’ publications and websites reveals that the achievements are appreciated in different ways. On the basis of the analysis, four stories were reconstructed (table 6.1, 6.2, 6.3, and 6.4).

Story 1: Wind power: matured grass roots³¹

“The success of wind power dates back to the political movement of 1968. This movement joined the environmentalists in the struggle against pollution and nuclear power. Later on, the battle against climate change became important; all these environmental motives have inspired wind power developments. Nationally, wind power found its way to the political agenda rather late (in 1991). The liberalisation of the energy market has mainly resulted in market concentration. A few companies are dominant now, so the market has not become more open.

In NRW, wind power developments provided an opportunity to shift from the old heavy industry towards a new high-value technological sector, creating many jobs. The NRW government has actively supported wind power. At national level, the political will to support renewables has resulted in a stable long-term support system. A variety

³¹ BMU, 2004; Greenpeace: 2004a, 2004b, 2004c; 2005; MWMEV, 2001.

of actors and organisations have strengthened the wind lobby. Through the German Wind Energy Association (BWE), it succeeded throughout the years in promoting wind power in the face of a hostile conventional energy sector. The successful expansion of wind power has been possible because a feed-in tariff system was adopted in 1991. Although opponents claim that this system is not cost-effective, evidence from abroad shows the opposite. Even in the UK the prices paid for wind-generated electricity are higher than with us, while they have more wind. They should be able to produce cheaper wind than we do, but they cannot. In addition, the coal and nuclear sector have received much more subsidies than renewables.

When local planning posed problems, the law was changed to oblige municipalities to designate areas for wind power. Municipalities can direct and influence the siting of wind power, which has greatly improved the situation. Still, some municipalities do not take their responsibility and refuse to designate areas.

In the early years, citizen wind farms guaranteed local involvement and local ownership. Many Germans have a share in a wind farm. *Bürgerwindpark Baumberge*: “Making people part of the project will help to gain acceptance. They become engaged and can make some money. You must be prepared to talk to the people and accept changes to your proposal. Unfortunately, nowadays most project initiators find this too much effort; their main objective is profit.” *Energieteam*: “Projects have become larger and project developers more commercially motivated, but this does not preclude inclusive project planning. However, not all developers take the effort to involve local people in planning and financially, maybe 30 % does.” *ABO Wind*: “We would not be able to build wind farms if we depended on participation from citizens. Except for some farmers, most local citizens are not interested in our offers to participate. Local involvement in planning is a responsibility of the municipality.”

It is not just the municipality’s task to involve the local people, but developers themselves have a task in this and local people should get the option to participate financially as well - that is the basic idea behind a *Bürgerwindpark*. *ABO Wind*: “Informing the citizens is a task of the municipality and how they do that, differs from municipality to municipality.”

Table 6.1 Actors and coded arguments of story 1

Story 1: Matured Grass roots

Respondents:

- BMU (federal environmental ministry)
- Energieteam (medium-sized wind developer)
- ABO Wind (medium-sized turnkey wind developer)
- Bürgerwindpark Baumberge (small citizens' wind project)
- BWE NRW/BEE (NRW wind sector branch/national renewables branch)
- Bundesverband Windenergie (BWE) (national wind branch)
- Landesinitiative Zukunftsenergien (state agency for energy)
- Greenpeace (national environmental organisation)
- VDMA (turbine manufacturer branch)

Respondents partly:

- MSWKS (NRW ministry for building)
- MUNLV (NRW environmental ministry)
- DEWI (wind research institute)

Stakeholders generally: wind energy sector at large; World Nature Fund (WWF); Friends of the Earth, Green Party

Coded arguments: remar 11^a; oblires 10; polfac 9; prienv 7; pragpart 6; locfin 6; bottup 5; compreh 4; govnot 4; partbegi 4; localres 3; proced 2; technbar 2; nimby 2; report 2; locat 1; prienv+ 1; moreways 1; costef 1

^a Number indicates how often a coded argument appeared

The conventional energy sector and energy intensive industries have always fought wind power. In this long battle between David and Goliath, the energy sector finally lost at the EU court in 2001. Then, they started to support anti-wind groups. The economic ministry has been into wind-bashing as well, because they are on the side of the coal and nuclear sector. Various studies have helped to create a negative image of wind power. Local opposition often relates to nimby-attitudes, a lack of environmental concern, or an unfounded fear that wind turbines negatively impact tourism. Finally it comes down to the fact that people don't like the view of wind turbines. Since a few years, all citizens have suddenly become worried about *das Landschaftsbild* (landscape image). A few years ago no one used this term; it has been blown up out of all proportions. Opponents represent a small minority but they are growing stronger, more professional, and sometimes they are supported by the conventional and nuclear energy sector. The media seem to be taking their side as well lately. Nevertheless, the overall public opinion on wind power is still very positive.”

Story 2: Wind power: pampered industry

“A more sustainable energy supply and a reduction of greenhouse gases can be reached in many ways, not only with wind power. The contribution in terms of generated electricity and in CO₂ reduction is not

that spectacular.

The wind sector has gotten used to the excessive support that has been provided for decades, instead of trying to become competitive. In principle, initial state support for renewables is all right, but the goal should be clear and the system cost-effective within a limited time frame. The 1991 feed-in tariff system was disadvantageous to the conventional energy companies. It was a big political mistake and cause of the adversarial relations between the conventional energy sector and the renewables sector ever since. A quota obligation system is more cost-effective than the present feed-in tariff system. Next, wind generators should be made responsible to market their own electricity themselves. Consumers presently pay for wind power, which negatively affects their spending on other issues. This again negatively affects the German economy, resulting in job losses. The story about job creation through wind power developments should be seen in this light. Energy intensive industries have threatened to leave Germany because of the extra charge for renewables added to their electricity bills.

Table 6.2 Actors and coded arguments of story 2

Story 2: Wind Power: Pampered Industry

Respondents:

- VDEW (electricity sector branch)
- BMWA (federal economic ministry)

Stakeholders generally: conventional energy sector (including the nuclear sector); energy intensive industries; Federal Association of the German Industry (BDI); Association of Industrial Energy and Power sector (VIK); Association of Utilities and Regional Energy Suppliers in Germany (VRE); Association of German Network Operators (VDN)³²

Coded arguments: costeff 2; remar 3; polfact 3; techbar 1; reports 1; nocon 1

Grid problems are caused by the expansion of wind power. Policy makers at the environmental ministry have structurally downplayed this problem. They only focus on more turbines, and they leave it up to the network companies to deal with all this fed-in electricity, to keep up base load capacity, and to arrange it all for the wind generators.

As long as excessive support continues, developers will place wind turbines on every conceivable site and resistance is bound to increase. Citizen-initiatives against wind projects are usually very well informed; they simply have found out that wind power is not so

³² Bundeverband der Deutschen Industry e.V. (BDI); Verband der Industrielle Energie- und Kraftwirtschaft e.V. (VIK); Verbandes der Verbundunternehmen und Regionalen Energieversorger in Deutschland (VRE); Verband der Netzbetreiber (VDN) e.V. beim VDEW

wonderful.

The relations between renewables generators and the conventional energy supply sector are still characterized by distrust from both sides and it is unlikely that these two sides will come closer together in the near future.”

*Story 3: Balancing Naturschutz and Klimaschutz*³³

Wind power contributes to a shift from an energy supply based on polluting hard coal, lignite, and nuclear energy to a more decentralised and sustainable energy supply that respects people and the environment. Both the feed-in tariff system and the requirement for municipal designation of priority areas for wind are positive. Still, energy efficiency and rational generation and use are equally crucial. Moreover, a proper balance between renewables on the one hand and nature, environmental and landscape protection on the other hand, is very important.

Wind turbines change the landscape and one should therefore develop stricter criteria to be assessed as part of the permitting process. We should not aim at removing all barriers for further expansion of wind onshore. We must realise that we are reaching a final stage, since the most suitable areas in NRW have been sited with turbines by now.

Table 6.3 Actors and coded arguments of story 3

Story 3: Balancing Naturschutz and Klimaschutz

Respondents:

- Nabu Deutschland (national nature protection organisation)
- Nabu NRW (NRW branch nature protection organisation)

Respondents partly:

- Paderborn municipality
- Münster district

Stakeholders generally: Bund für Umwelt und Naturschutz Deutschland (BUND); Landesgemeinschaft Naturschutz und Umwelt NRW e.V (LNU); Deutschen Naturschutzrings (DNR)

Coded arguments:

- natprot 3; careplan 4; polfac 4; bottup 1; partbegi 3; pragpart 2; locfin 2; remar 3; realgoa 2; moreways 2; bigbus 1

Careful planning is crucial to minimise the impacts on the environment and landscape and to take away the worries of the people. Past failures should be corrected through an improved state-level planning framework. Designation of priority areas on a state or regional level - instead of municipal level - enables a better protection of sensitive areas and a concentration of wind turbines. Municipalities, citizens and nature

³³ BUND, Nabu, LNU, 2002; BUND, 2001; 2004; Nabu, 2004, 2005; DNR, 2004.

and environmental protection organisations should be involved in this process. Next, a case-by-case approach is needed. Nature and environmental protection organisations have developed checklists for developers to take into account environmental issues at an early stage of project planning. Successful implementation is most likely when the initiator and municipality sit around the table with local residents at an early stage and are willing to accept changes to the plan and allow local residents to participate financially.

Greenpeace simply says: ‘wind energy is good’ without worrying about local impacts. In NRW tensions are increasing. People feel that the landscape of their *Heimat* is being changed more drastically than it ever was in the past (e.g. when grassland was converted into agricultural land). In addition, some people are directly affected by noise and shadow-flicker. Opposition has grown mostly in areas that have seen a significant and rapid increase in turbines over the last couple of years. People get the feeling that the burdens are unequally shared. Visual impact often is the main issue. If nature and environmental protection organisations are consulted in time, local anti-wind groups will find less fertile ground to mobilise people. Their opposition often is not based on proper arguments. Among local branches of the nature protection organisations, resistance is growing against ever more wind turbines. The supra-local branches try hard to overcome these internal divisions, to find a balance between nature and environmental protection, at both global and local levels.”

Story 4: Save our Heimat

“The expansion of wind power implementation reflects the wish of the Greens to obtain visible successes in their political struggle to prioritise climate change. As far as the energy supply and climate change protection are concerned, wind power is totally useless. If the costs are balanced with what wind power actually amounts to in terms of energy and CO₂ emission reduction, it turns out to be no contribution at all. Billions are spent annually on wind energy. The number of jobs created by wind power developments is highly overrated. Moreover, the destruction of tourist spots by wind turbines is not internalised in the costs. All support for wind power should be terminated; it is a waste of taxpayers’ money.

The closely-knit network of Green politicians, the wind sector and their lawyers, people high up in the ranks of environmental and nature protection organisations and consultants, has ensured a strong political backing for wind power. The large nature protection organisations have forsaken their duty by allowing all those turbines to

destroy our landscape. The Greens have forgotten about basic democracy, they live in the urban areas and impose wind power on the rural people. Ecologically and economically useless wind turbines change the characteristic cultural historic landscapes into industrial zones. Psychological and physical burdens are about to drive citizens from their beloved *Heimat*. Wind turbines threaten animals, are a burden to people, and decrease the value of immovable goods.

Table 6.4 Actors and coded arguments of story 4

Story 4: Save our Heimat
Respondents:
- BLS (anti-wind association)
Respondents partly:
- Münster district
Stakeholders generally: Citizens initiatives against wind power; signatories of the Darmstadt Manifesto; Verband für Gesundheits-und Landschaftsschutz e.V
Coded arguments: polfac 2; bigbus 2; landscape 1; nocon 1; nodare 1; careplan 1; moreways 1; techbar 1

In NRW, after 2000, the gold rush for wind started for real. Whatever people will do to oppose it won't help. Court cases have been lost, which is not surprising when you consider that many judges have shares in a wind farm themselves. Wind energy applications have attained a status equal to public water supply, telecom and similar services, which is ridiculous. Almost every municipality is forced to accept these turbines.

Local beneficiaries are a few farmers and only a very small percentage of the local population actually profits. At last, the media are taking up the issue, which is helpful. For too long, there has been a taboo on criticising wind power, as it went against the politically and socially prescribed norms. Citizens' initiatives are regularly falsely accused of being paid by the energy and nuclear companies."

Areas of contention

The stories reveal differences of opinion and fierce controversy over whether and how wind power implementation should take place. Within the first story, one can distinguish between those arguing for an approach that would involve the local community in project planning through financial participation and those who regard this strategy as not feasible and who moreover regard participation as a task for the municipality to arrange for.

Between the stories, a first contentious issue relates to cost-effectiveness. The *Matured grass roots*-story regards the support as having enabled a new booming economic sector, while the *Pampered industry*-

story and the *Save our Heimat*-story judge this sector as a pampered industry. Second, the preferential treatment of wind power is contested. In Germany, all municipalities are required to indicate areas for wind power implementation. While the *Matured grass roots*-story and, to a lesser degree, the *Balancing Naturschutz* and *Klimaschutz*-story are in favour of this measure because it encourages further implementation, the *Save our Heimat*-story regards it as a top-down measure that does not respect the municipalities' right to decide whether it wants to allow wind power developments at all. Third, the impact of wind turbines on nature and on landscape values is a contentious issue. The *Balancing Naturschutz* and *Klimaschutz*-story asserts that wind projects have been ill-planned and badly sited in some cases, from a nature and landscape protection point of view. For this reason, it suggests a designation of priority areas for wind power on a regional instead of a municipal scale. In addition, this story argues that the wind sector should realise that a certain saturation point has almost been reached in NRW - both in terms of available sites and in terms of local acceptance. The *Save our Heimat*-story is even more worried about the destructive landscape impact, and calls for a stop to any further wind power implementation. Where once local churches were visible focal points, now these are overshadowed by giant industrial objects, while the local people are powerless in the face of developers. Where the *Matured grass roots*-story refers to the background of the grass roots movement, opponents only see power play and imposition. The *Matured grass roots*-story accuses the conventional energy sector, energy intensive industries and the economic ministry of being too much entangled. However, they come in for similar criticism, in that the wind sector has its connections at all levels of government through a Green old-boys network. Both the *Pampered industry*-story and *Save our Heimat*-story claim that the wind rush has been ideologically motivated. The latter story furthermore denounces wind power developments for having been imposed by an increasingly powerful urban-based coalition, against the will of local rural citizens. This contrasts starkly with the *Matured grass roots*-story that emphasises the broad societal support for wind power. Overall, this story regards opposition as arising from nimby-attitudes; fear of change, or as instigated by the conventional energy sector. The following sections place the tensions between the stories in the broader historical institutional context of wind power developments in Germany and NRW.

6.3 Policy domains: energy, planning and environment

6.3.1 Energy domain

Beginning years: limited R&D triggers turbine technology

The 1973 oil crisis brought renewables to the attention of the federal government, although it primarily strengthened the support for hard coal and nuclear. In the eighties, support for renewable energy technologies consisted mainly of R&D, complemented by demonstration projects, but this was a fraction of the support granted to coal and nuclear power (Jacobsson and Lauber, 2006; Ragwitz and Huber, 1995). Both the Federal Ministry of Economic Affairs and Employment (BMWA)³⁴ and the Federal Ministry for Research and Technology (BMFT)³⁵ were very sceptical about the potential of wind power. The conventional and nuclear energy sector declared that wind power was unsuitable for large-scale generation and therefore uninteresting (Heymann, 1995).

Nevertheless, in 1978, the research ministry decided to develop a 3 MW wind turbine, the Growian³⁶. Several utilities and an aerospace company took part in the initiative. In 1983, the Growian started operation, but it ran into technical problems. Until its dismantling in 1987, it had been standing idle for 99 % of the time and it received a lot of criticism, notably from people involved in small turbine development (Heymann, 1995). There still was R&D funding available to finance smaller-sized projects and several companies and academic institutes received funding to work on very diverse designs. By the end of the eighties, the domestic market was still small. Total installed capacity wind power in Germany in 1989 was 19 MW. The demand for wind turbines was coming from a few environmentally concerned local utilities, farmers and individuals. (Bergek and Jacobsson, 2003).

North Rhine-Westphalia takes a forerunner role

The German states elaborate federal framework legislation on energy and adopt legislation on their own behalf as well. From early onwards, the NRW government attempted to combine environmental protection with energy policy, aiming at a structural change (*Strukturwandel*) in energy generation and use (Borcher, 1993). In 1984, an energy policy

³⁴ Bundesministerium für Wirtschaft und Arbeit (BMWA)

³⁵ Bundesministerium für Forschung und Technologie (BMFT)

³⁶ Growian stands for große Windenergie-Anlage or large wind turbine

document announced a supportive programme for renewables (MWMV, 1984). The NRW government expressed a strong commitment to renewables and envisaged that state support was crucial to start up this energy system restructuring. In 1987, the social-democratic (SPD) state government adopted the REN-programme³⁷, which would serve as an example for other states later on (Suck, 2002). The comprehensive REN-programme aimed at more efficient energy use and generation, a reduction of environmentally damaging hard coal and lignite mining, energy efficiency and development of renewable energy technologies. Broader aims included the improvement of environmental quality, the securing of energy supply, and enhanced competitiveness of NRW companies - through a new innovative technological sector with employment and future export opportunities. This progressive strategy can be understood in view of the fact that NRW faced environmental problems (related to coal and lignite mining, as well as to the heavy industries), and that the industrial basis was declining, with adverse effects on employment. With the comprehensive REN-programme, NRW aimed at improving the environmental record while also creating a new (clean) technological sector with employment and export potential. The SPD which has dominated the NRW government over the past decades, aimed at securing support for the coal sector in order to maintain employment, while also being supportive of the development of a renewables sector.

The REN-programme explicitly addressed small-to medium-sized enterprises, municipalities, households and individual citizens. It aspired at reaching a societal consensus about the energy system restructuring (MWMV, 1994). Legal, financial and advisory measures were adopted in the field of technology development, demonstration, the development of energy concepts and a broad support programme.

Environmental concern strengthens support for renewables

In Germany, the Chernobyl disaster and the rise of concerns relating to climate change resulted in an increasing commitment to environmental issues generally and to renewables in particular. In 1987, Chancellor Kohl stated that climate change was indeed a very serious environmental problem that merited attention. The federal parliamentary committee for the Environment, Nature Conservation, and Nuclear Safety established an Inquiry Commission on Preventive Measures to Protect the Earth's Atmosphere. Its first report in 1989 stated, among other things, the need for a fundamental change in energy policy, in order to reduce CO₂

³⁷ REN stands for Rational Use of Energy and the Use of Renewable Energy Sources

emissions (Weidner, 2005). In 1986, a study commissioned by the BMFT had also called for the expansion of renewables and energy efficiency measures (Lauber and Mez, 2004; Jacobsson and Lauber, 2006).

In the second half of the eighties, two associations were set up that represented the infant wind sector. They were mostly active in NRW, Lower Saxony and Schleswig-Holstein, attempting to influence state level policies. In NRW they helped to convince the state government to take up the REN-programme (1987).

An important issue concerned the remuneration paid for renewable electricity delivered to the grid. Utilities were required to purchase renewable electricity their area of supply, where they owned the grid. Apart from a few environmentally concerned local utilities, the utilities paid a price at the level of their own calculation of avoided costs (the cost spent on the supply of the same amount of energy, produced by themselves or bought from another generator), which was very low (Jacobsson and Lauber, 2006; Suck, 2002). Proposals to improve this through legislation were rejected by the government. Instead, the BMFT initiated the 100 MW wind programme in 1989, aiming at 100 MW of installed capacity wind power, which was later expanded to 250 MW. The programme provided investment subsidies for private developers like farmers, and a subsidy per kWh of electricity produced. However, there were continued calls for fixed feed-in tariffs for electricity from renewable energy sources. Representatives of wind power, hydropower, biomass and solar interests joined in a lobby of diverging political outlooks - hydro-operators generally voted for the Christian-Democrat CDU or the centre-right liberal FDP, while those involved in wind power were closer to the Greens and the social-democrat SPD. The representatives lobbied at both state and federal level (Suck, 2002). Eurosolar, a non-profit, politically independent association for renewable energy, provided support at the federal level. It was close to parliament and helped to form a cross-party parliamentary coalition vis-à-vis the conventional energy interests, as represented by the Association of German Utilities (VDEW)³⁸ (Suck, 2002). The research and environmental ministries supported a parliamentary proposal for a feed-in tariff system. The economic ministry, responsible for renewable energy policy and closer to the conventional energy sector, eventually gave in grudgingly, when confronted with parliamentary and interdepartmental pressure (Jacobsson and Lauber, 2006).

³⁸ Verband der deutschen Elektrizitätswirtschaft (VDEW)

Explosive growth in wind power

In 1991, the Federal Electricity Feed-In Act (StrEG)³⁹ was adopted (table 6.5). The Act aimed at creating a 'level playing field' for renewable energy sources, through feed-in tariffs that took account of the external costs of conventional power generation. The StrEG required the grid owning utilities to connect renewable generators to the grid and to purchase their electricity. The tariff was coupled to the conventional electricity prices in Germany and for wind it was set on 90 % of the average sales price of electricity for end consumers. There was no limit to the amount of renewable electricity that could be fed into the grid. The StrEG did not apply to renewable electricity from applications that were for 25 % or more owned by the federation, a state or public utilities (Bundestag, 1990). Consequently, utilities would not receive extra benefits when producing renewable electricity themselves. They did not protest vehemently, perhaps because they did not expect wind power to expand significantly. The main reason, however, was that the large utilities were occupied with the take-over of the electricity sector in the former GDR (German Democratic Republic), for which they received large subsidies (Jacobsson and Lauber, 2006).

Renewables were also supported through a federal energy research programme. From 1990 to 1998 this amounted to more than 2 billion German marks. The government's banking institutions *Deutsche Ausgleichsbank* and *Kreditanstalt für Wiederaufbau* provided soft loans and from 1990 to 1998 renewable project developers were granted loans for over 6 billion German marks. In addition, educational programmes for professionals and the public were set up as well (Lauber and Mez, 2004). To facilitate the siting of wind turbines, the Federal Construction Law was amended in 1997 (see section on planning).

The whole package of support provided significant incentives for investors. Federal and state level support in some cases amounted to 75 % of the investment costs for projects (Suck, 2002:21). The NRW programme was well tailored to the needs of small-scale wind turbine development and project development. The Federal 100/250 MW Wind Programme supported 72 % of the newly installed wind turbines in 1992, but in 1993 this was reduced to 45 % and to less than 10 % in 1995 (Durstewitz *et al*, 2003). The StrEG remained the centrepiece of the supportive framework for the market expansion. It provided security because the feed-in payments were based on a law, not a temporary programme. The high and predictable financial yields greatly encouraged farmers, individuals, and business to invest in wind power. Private capital

³⁹ Stromeinspeisungsgesetz (StrEG)

was mobilised on a large scale (Bergek and Jacobsson, 2003). The growth in installed capacity of wind power exceeded all expectations, from about 19 MW in 1989, to over 1,100 MW in 1995 (Hoppe-Kilpper *et al*, 1997). In NRW, installed capacity increased from 10 MW in 1992 to 110 MW in 1995 (Keuper *et al*, 1992; Rehfeldt, 1995).

Table 6.5 Main legislation and policy for wind power

Year	Law or measure	Focus
1987	NRW REN-Programme	Comprehensive support for renewables
1989	Federal 100 MW/250 MW Wind programme	Investment incentive Payment per kWh for renewable electricity
1991	Federal Electricity Feed Law amended 1998 (StrEG)	Feed-in tariff for renewable electricity Requirement for utilities to purchase renewable electricity Tariff wind power: 90 % of consumer price electricity
1994	NRW change Nature Protection Law	Facilitating projects of 1or 2 turbines
1996	NRW Wind Ordinance (renewed in 2000, 2002)	Planning and permitting procedures and nature protection laws
1997	Federal Change Federal Construction Law	Privileging wind power in outlying areas Municipal designation of wind priority zones
1998	Federal Energy Reform Act, amending the StrEG	Geographical equalisation of reimbursement obligation utilities
2000	NRW Wind Ordinance	Renewal of 1996 Ordinance
1999	Federal Ecological Tax Reform	Shift of tax burden from labour to pollution (Weidner, 2005)
2000	Federal Erneuerbare-Energien-Gezetz (EEG) Renewable Energy Act	Feed-in tariff for 20 years Tariff decoupled from electricity price Differentiated for location and over time Requirement for electricity suppliers to purchase renewable electricity
2002	NRW Wind Ordinance	Renewal of 2000 Ordinance
2003	Härtefallregelung	Exemption for energy intensive companies to contribute to costs of renewables
2004	Federal Renewed EEG	Renewal of 2002 EEG Stronger degression in tariffs for wind power

Market growth encourages turbine manufacturing

Market growth improved the position of the turbine manufacturers. A variety of projects qualified for support under the 100/250 MW Wind Programme, including small- and medium-sized ones (Bergek and Jacobsson, 2003). Foreign firms were eligible as well, but it was ensured

that a share of at least 50 % would go to German companies like Enercon, Tacke, Husumer, Seewind and Ventis (later Dewind). Tacke benefited when NRW provided investment support that was coupled to the choice for one of Tacke's turbines (Bergek and Jacobsson, 2003). The swift market development from 1989 to 1995 triggered learning processes among wind turbine suppliers and local components suppliers (Lauber and Mez, 2004).

In the early nineties, most turbines were in the range of 200 to 500 kWh. From the mid-nineties onwards, they ranged from 1 to 1.5 MW. In 2000, the first 2.5 MW turbine was produced and at present, 3 to 5 MW turbines are being developed (Durstewitz, 2000). The increase in inland wind projects - e.g. in NRW - prompted manufacturers to develop turbines that worked efficiently at lower wind speeds (Greenpeace, 2004c).

Conventional suppliers on the offensive

Before liberalisation in 1998, the German electricity sector was characterised by regional monopolies. Nine large integrated utilities (EVU)⁴⁰ operated at the level of the transmission system. Sixty regional companies and 700 local level companies were responsible for energy supply within their respective areas. Demarcation agreements guaranteed them exclusive supply rights. The VDEW represented the large, almost all medium-sized and most of the smaller suppliers (Grotz, 2002; Suck, 2002).

The spectacular increase in wind power implementation took the utilities by surprise. Especially in the coastal states of Lower Saxony and Schleswig-Holstein, they had to purchase increasing amounts of wind-generated electricity. The Act had no provision to spread the burden of paying feed-in tariffs evenly in geographical terms. As the installed capacity of wind power rose, so did the energy companies' resistance. The Federal Cartel Office and state level Cartel offices had to interfere a few times to make utilities pay the feed-in prices to the renewable generators.

The StrEG was contested before German courts, especially by Northern German supply utilities. They felt that they had to pay an inequitable amount of feed-in remunerations because of the rapid expansion of wind power in these coastal states. One of the issues brought up in court was whether the StrEG was constitutional. The two highest German courts, the Federal Constitutional Court and the Federal High Court confirmed the constitutionality of the law in 1996 (Ruchser,

⁴⁰ Energieverbundunternehmen (EVU)

2002a). Another issue, brought before the European Court of Justice in 1998, was whether the feed-in law contravened EU rules on state aid. In March 2001, the Court ruled that the law was not contradictory to the EU regulations because the tariffs paid for renewable electricity were not generated from tax revenues but from grid operators' revenues (Advocate General Jacobs, 2000).

Liberalisation and reform of the StrEG

The German economy is one of the world's largest and in terms of energy use, Germany is on top in Europe. Apart from hard coal and lignite, it does not have a large fossil fuel resource base. Petrol and gas are largely imported (Schleich *et al*, 2002). Throughout the past century, the energy sector has supported Germany's industrial economy and built up a powerful financial and political position. Both the coal and nuclear sector have received large subsidies. Close connections have developed between the energy sector, other financial and industrial interests, and the government, particularly the economic ministry (BMWA). The reciprocal bonds between the sector and all levels of government secured the former of political influence and the latter of a share in the revenues (Lauber and Mez, 2004). This entanglement eventually made it difficult to reform the energy sector. A 1993 proposal by BMWA to partially divide the industry, arrange for third party access and to impose a stricter control on electricity prices met with resistance and was withdrawn in 1994. In 1996, a second draft was submitted. This time the Directive 96/92/EC on common rules for the internal electricity market provided some backing. The stated goal of the draft was to reduce electricity and gas prices and to enhance Germany's international competitiveness.

The proposal for the amendment of the Energy Supply Industry Act coincided with a struggle over changes in the StrEG. BMWA wanted to reduce the feed-in rates, but met with political opposition, which culminated in a joint protest demonstration in 1997 of the metalworkers union, farmer- and church groups, and environmental- and renewable energy associations (Hustedt, 1998). In a press conference, the influential Federation of the Engineering Industries (VDMA), whose members include turbine manufacturers, denied the BMWA proposals support as well. In the end, the BMWA proposal lost out in the Bundestag (federal parliament) (Lauber and Mez, 2004). A select committee consisting of 15 members of parliament (MPs) was then assigned to investigate whether and how the StrEG was to be amended. The pro-renewables MPs won the battle and a continuation of the feed-in tariff system was guaranteed, but on close call: eight against seven (Bergek and Jacobsson, 2003). The

Energy Reform Act⁴¹ was enforced in April 1998. It amended the Energy Supply Industry Act⁴², the Anti-Trust Act⁴³ and the Electricity Feed Act (StrEG).

The amended StrEG of 1998 included a method to spread the costs of paying feed-in tariffs among the utilities. If the renewable electricity to be purchased would exceed 5 % of the total amount of electricity supplied by the company concerned, the upstream network operator would have to compensate that company for the additional costs caused by the compulsory purchase of the amount of electricity exceeding that 5 % (Advocate General Jacobs, 2000). Hence, cost burdens above 5 % could be transferred from the local suppliers to the regional supply companies and from the regional ones to the supra-regional transmission system operators (Suck, 2002:34). However, some of these transmission operators were soon nearing the 5 %-ceiling, whereupon they called for a better solution.

In September 1999, a common statement was signed to confirm the basic principles of the Energy Reform Act: the end of demarcation treaties, full access to the network for all suppliers and free choice of supplier for all consumers (Lauber and Mez, 2004). The rather turbulent period from 1996 to 1998 had meant insecurity for investors, and stagnation in the turbine industry (Lauber and Mez, 2004). Moreover, the reunification of Germany and economic recession in the early nineties had resulted in a general setback for environmental policy. The installation of the red-green government in 1998 would reinvigorate the attention for renewables.

Liberalisation: concentration of power

Through the Energy Reform Act, supply was separated from grid operations. In 1999, German industry and energy associations agreed on an Association Agreement⁴⁴, to provide for a negotiated third-party access system for electricity, to determine use of system charges and arrange for the access of new actors to the grid (Grotz, 2002). Transmission control remained mostly in the hands of the EVU. However, increasing criticism of the absence of an energy market regulator resulted in the establishment of a regulatory body in 2005.

After liberalisation, the three types of supply companies - local, regional, and at transmission level - still can be distinguished (figure 6.1).

⁴¹ Gesetz zur Neuregelung des Energiewirtschaftsrechts

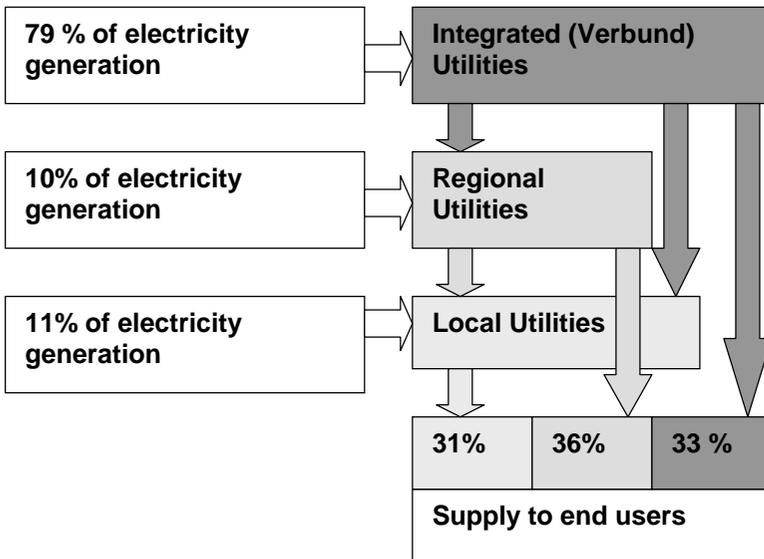
⁴² Energiewirtschaftsgesetz

⁴³ Gesetz gegen Wettbewerbsbeschränkungen

⁴⁴ Verbändevereinbarung Strom

The supra-regional distributors (EVU) operate and coordinate their own power plants as well as the high-voltage transmission. They supply the regional and the local ones, and sometimes they deliver electricity directly to end consumers. In 2000, the EVU were responsible for three quarters of total electricity production in Germany, and even more if one counts their shares in regional and local utilities as well (Schleich *et al*, 2002). Next, the regional utilities distribute electricity that is produced by themselves, or by the EVU, to the local utilities or end users. Most of these companies are strongly connected to the EVU (e.g. through long-term supply contracts). Finally, local level utilities deliver electricity generated by the EVU, regional utilities, and themselves, or by small independent power producers.

Figure 6.1 Organisation of energy supply



Source: Schleich *et al*, 2002:152

Although there are still hundreds of companies active in the energy market, liberalisation has resulted in a concentration. After 1998, existing suppliers merged into larger companies. Four large supra-regional companies presently control a large part of energy generation: RWE AG; E.On Energie AG, Vattenfall Group AG, and EnBW AG.⁴⁵ New actors have entered the market: foreign energy suppliers, independent

⁴⁵ RWE: Rheinisch-Westfälischen Elektrizitätswerks. E.On is the former Bayernwerk AG together with PreussenElektra. Vattenfall Group is a Swedish company and EnBW stands for Energie Baden-Württemberg.

producers and traders of electricity, and suppliers offering green electricity.

NRW: expansion and consolidation

Throughout the nineties, the REN-programme underwent changes that were preceded by consultations with stakeholders. NRW-level support provided security in times of national political turmoil over the continuation of the StrEG. The REN-programme was considered a success, because companies and citizens were enormously responsive and because it triggered large investments in various technologies (MWMEV, 2001). In 1996, several NRW ministries jointly established the State Initiative for Future Energies⁴⁶, to bring together ministries and the renewables sector. For wind power, it focused on facilitating export opportunities for the industry as well as on the opportunities for 'repowering' - the replacement of old turbines with new ones. The wind energy component supply industry became an example of successful market expansion and job generation.

Around 2000, the market introduction of wind power was considered successful enough to terminate REN-support. Until the end of 2000, the NRW government supported 919 turbines (436 MW) with some 70 million Euros. In December 2004, total installed capacity in NRW amounted to 2,053 MW (Dewi, 2005). In 2004, the component and machine-building market for wind power in NRW provided 35,000 jobs and an annual return of 882 million Euros. However, after 2001 this market stopped growing. Domestic demand decreased and the potential of the repowering market and of boosting export turned out to be limited. The market is expected to consolidate rather than to expand (any) further (Allnoch and Schlusemann, 2003; 2004).

Red-green support for renewables

In October 1998, a red-green coalition of SPD and the Greens replaced the CDU-FDP government. The new federal government was strongly committed to climate change policy and energy was to become a spearhead, through the introduction of an ecotax on energy, improved support for renewables and a negotiated phase-out of nuclear power (Bechberger, 2000). The government set the target to increase the contribution of renewables to the electricity supply to 12.5 % in 2010 and 50 % in 2050. In 2004, the target for 2020 was set at 20% (BMU, 2004). In addition, a five-year market incentive programme for renewables would provide about 445 million Euros from 1999 to 2002.

⁴⁶ Landesinitiative Zukunftenergien

A new feed-in law

In late 1999, the process to reform the StrEG started. This reform was needed for various reasons, for instance, to answer calls for spreading the costs for paying feed-in tariffs nationally, but also because of needed compliance with EU directives. The large utilities opposed a continuation of the feed-in system, and the BMWA argued for a quota obligation system instead. Again, parliamentary groups took the initiative to submit a bill for preserving the feed-in tariff system. The BMWA did not manage to impede this proposal (Lauber and Mez, 2004). In March 2000, the bill was adopted as the Renewable Energy Sources Act (EEG)⁴⁷, replacing the 1991 StrEG and its amended 1998 version. Like the former law, it stated that external costs of conventional generation were to be taken into account (Bundestag, 2000).

The EEG required grid operators to accept and purchase electricity produced from renewable sources at a premium price within their area. The Renewable Energy Act differed in several ways from the old law. The feed-in prices were no longer coupled to electricity retail prices but fixed for 20 years, meeting the wishes of the renewable energy generators. The feed-in tariffs were fixed variably over time and according to energy technology and location. For wind power, the tariffs were degressive, to encourage manufacturers to reduce production costs and increase efficiency (Ragwitz and Huber, 2005). The EEG discriminated between areas of high and low wind potential by using reference baselines. Wind projects on sites above a certain reference value - i.e. with good wind speeds - would receive lowered feed-in payments after five years of operation. For sites with below-average wind speeds, a prolongation of the high feed-in tariff would be ensured. A countrywide equalisation scheme was introduced to spread the feed-in reimbursement costs evenly among the EVU so that the costs could then be passed on equally to all electricity consumers (Ragwitz and Huber, 2005). The EEG improved the opportunities for wind power implementation in inland areas. Implementation in NRW accelerated, and the installed capacity level more than doubled from 644 MW in 2000, to 1,445 in 2002 (table 6.6).

The minister would report every two years on the market developments to be able to make necessary adjustments. Apart from the EEG, a market incentive programme was adopted in 1999, as the successor to a former support programme.

In April 1999, the government took the first steps towards an ecological tax reform. Central elements were a new electricity tax and

⁴⁷ Erneuerbare Energien Gesetz (EEG)

increased taxes on motor fuels, fuel oil, and natural gas. Taxing energy consumption would reduce emissions and the revenues would be used to lower labour costs and increase employment. Exempted were bio fuels and heat production from renewable energy sources. Coal was also exempted from taxation, in order not to hurt employment (Schleich *et al*, 2002). Electricity from renewable energy was not exempted but the government earmarked parts of the ecotax revenues for the market introduction programme of renewable energy sources (Grotz, 2002).

Support was furthermore granted through soft loans provided by the *Kreditanstalt für Wiederaufbau (KfW)* and the *Deutsche Ausgleichsbank/Dta*, as well as through various schemes to promote investments in technology development and demonstration. Soft loans were still important for wind projects. Practically all new projects applied for them, and of the loans granted in 2000, 97 % went to wind projects (Grotz, 2002).

Table 6.6 Cumulative capacity levels (MW) and number of turbines in NRW

Year	1992	1995	1998	1999	2000	2001	2002	2003	2004
Installed Capacity (MW)	± 15	110	326	402	644	1,010	1,445	1,822	2,053
Number of Turbines	188	502	856	974	1,192	1,478	1,848	2,125	2,277

Source: Dewi, 2006a

Turbines: made in Germany

The German turbine manufacturing industry has become a powerful player on the national and international market, next to the Danish. Of 16 German turbine manufacturers in the beginning of the nineties, several were taken over by the larger ones (Bergek and Jacobsson, 2003). In 1997, in the midst of the turmoil around the continuation of the feed-in tariff, the second largest and NRW-based manufacturer Tacke went bankrupt, which was partly related to a series of technical failures (Krohn, 1998). Tacke was taken over by Enron and later by General Electric. By 2002, German companies delivered over a third of wind turbines globally. (Jacobsson and Lauber, 2006). In 2004, around 61,000 people were employed in both turbine manufacturing and related industries in Germany (BWE, 2005b).

Re-election and EEG review

When the red-green coalition started its second term in 2002, the competence for renewable energy was shifted from the BMWA to the Environmental Ministry (BMU). A first review of the Renewable Energy Sources Act took place in 2002. BMWA argued that the feed-in prices for wind in particular were much too high. The proposal to have a tendering system instead did not make it, but they did manage to effect a reduction of the payments for wind energy. Conservative state representatives in the Bundesrat (upper house of parliament) also initially opposed the bill for a renewed EEG. However, after negotiations that resulted in some further changes, the bill was accepted in both houses in 2004 (Lauber and Mez, 2004).

Concerning onshore wind, the feed-in prices were lowered significantly for sites with a high yield, and lowered somewhat for locations with average yields. Moreover, the annual degression rate of the tariffs for wind was increased (Ragwitz and Huber, 2005). In addition, attention was focused on improving the integration of renewable plants into the electricity system. In 2003, at the request of energy intensive industries, a *Härtefallregelung*, was introduced, which exempts energy intensive companies from paying a contribution for renewable electricity (Interview with BMWA, 2004). At present, a discussion revolves around the impact of wind power on grid management. The energy sector and BMWA accuse the BMU of neglecting grid-capacity problems caused by large amounts of electricity being fed into the grid, particularly by wind generators in the northern coastal states.

From Bürgerwindparks to windfall profit funds?

In 2003, a study was conducted on farmer involvement in wind projects that were supported by the 250 MW Wind Programme. It revealed that by the end of the eighties and beginning of the nineties, most wind turbines were owned by farmers. After 1995, the number of farmer projects decreased, while increasingly small companies (1-3 persons) became involved in planning, developing, and arranging finance for wind projects (Durstewitz *et al*, 2003). They developed turnkey projects or set up a wind project as an independent company in which private individuals (e.g. farmers) and companies could buy shares. Private individuals could moreover deduct investments in production goods from income taxes, and this arrangement also applied to investments in wind turbines. Farmers increasingly participated in such companies.

The model of Bürgerwindparks has been widespread, also in NRW. These projects are set up as a company and realised through close cooperation between the initiators (e.g. a company, or a local landowner)

and the local community. Locally based citizens are offered shares for a relatively low minimum price (e.g. between 2,500 and 5,000 Euros). Two wind projects that were initiated by the medium-sized company Energieteam AG show how relatively large projects can still be Bürgerwindparks. They are the Sintfeld project (105 MW) and the Asseln wind farm (35 MW), both in NRW. Energieteam advocates a strategy of local involvement, financially and in terms of planning, in order to successfully implement wind power. Not all companies feel this way. Moreover, the idea of a Bürgerwindpark has become somewhat inflated. Company ABO Wind defines it as a project where local citizens *have been offered* the opportunity to buy shares in a project. This means that an ABO Bürgerwindpark can actually be a project with no locally based shareholders (Interview with ABO Wind, 2005).

There are no data available on ownership for Germany. Company and ownership structures are heterogeneous and fluid. Estimates of locally owned projects for the whole of Germany range from 20 % to 50 % (Interviews with BWE and Energieteam, 2003). An estimate of farmer involvement states that over 50 % of the projects are realized with farmers - either as land renters, project owners, or as part of an operator group (Interview with BWE, 2003). By the end of the nineties, the smaller wind power companies decreased in number and those that survived were medium-sized and larger companies (e.g. Plambeck, Deutsche Essent). As a general trend, NRW wind farms are increasingly planned without local financial involvement and with less local involvement in project planning.

Various larger wind farms have been developed through investment funds, in which individuals could buy shares while benefiting from an investment tax rebate. This fiscal incentive was especially attractive for people with large incomes (Ruchser, 2002b). It is estimated that some 100.000 Germans hold a stake in a wind project (Greenpeace, 2004c). Buying shares in wind power funds became very popular around 2000, but in the following years some funds went bankrupt - e.g. Umweltkontor. This, and the insecurity surrounding the EEG renewal dampened enthusiasm to invest in 2003 (Interview with ABO Wind, 2005). Project developers are increasingly looking abroad to develop projects. Within NRW, the best sites - with the least chances of conflict - have already been developed. Nor is repowering providing developers with sufficient work.

Discussion: long-term stable support for wind power

Although the government initially was sceptical about renewables, the anti-nuclear political turmoil inspired grass roots initiatives that managed

to get state level support in the eighties. The NRW government was responsive to grass roots initiatives, motivated by both environmental and economic reasons. At national level, there was less willingness but parliamentary pressure still resulted in the adoption of the feed-in tariff system. From 1991 onwards, a comprehensive package of federal and state level support triggered the rise and growth of a new sector in NRW. A major advantage of the feed-in system, in combination with other federal support programmes and NRW-level support, was that it enabled a diversity of actors to become involved in both the development of turbines and the development of projects. This diversity enabled technological learning and investment security encouraged local ownership. The fact that the conventional energy sector was not involved in wind power helped the development of this diversity, but caused bitter confrontations as well. At the national level, political support for the feed-in tariff system had to be regained repeatedly. Parliamentary groups have more than once seized the initiative to draft the law, a rather unusual practice in German politics (Lauber and Mez, 2004; Bechberger, 2001). The EEG renewal in 2004 shows that the renewables sector by now represents a significant economic interest, which makes a drastic shift in the support system unlikely.

6.2.3 Spatial planning domain

In line with the federalist principle of the German constitution, the planning system involves a statutory division of competences and responsibilities between three distinct levels of government, each with its own legal foundation, organisational structures and substantive focus: the Federation, the sixteen states and the local authorities.

Each state has its own constitution and an elected parliament, ministries, a cabinet and a prime minister. States implement legislation on behalf of the federation, as well as on their own behalf. Municipalities have an elected council, independent financial resources and rights and duties of self-government. The municipalities fulfil tasks delegated by the states and Federation, while regulating matters that concern the local community on their own behalf (Turowski, 2002). These matters involve local administration, local finance and taxation, the provision of schools and other local facilities, local transport policy, health policy and local land-use planning (EU Compendium, 1999). The constitution provides them with the rights and duties of self-government, which includes the task to enact local laws. The *Gegenstromprinzip*, or principle of countervailing influence, means that although planning at a higher administrative level is binding for planning at lower levels, the higher

levels must take into account the situation and preferences at lower levels of planning (Faludi, 1997). This subsidiarity is characteristic of the German administrative and planning system. Legal requirements are in place to ensure the exchange of information, participation and co-ordination between the levels of government.

Spatial planning: prerogative of technocrats

All planning authorities must adhere to the requirements of federal comprehensive spatial planning or *Raumordnung*, as set out in the Federal Spatial Planning Act⁴⁸. This framework indicates planning objectives for Germany, and defines how state and regional planning is to be conducted. The states elaborate the basic principles of federal spatial planning, as well as federal sectoral laws concerning, among other things, nature and environmental protection and landscape preservation (Turowski, 2002).

In the sixties and seventies, comprehensive spatial planning aspired to combine social, economic and spatial policy aims. However, other policy sectors increasingly denied cooperation. Generally, planning was regarded as impeding local and regional economic development and growth (Kunzmann, 2001). A drawback of comprehensive spatial planning resulted and the new approach was to be more modest and less prescriptive (Albers, 1999). In the eighties, deregulation affected planning. In 1986, the Conservative government amended the Federal Spatial Planning Act, which resulted among other things in a stronger emphasis on public-private partnerships (Albers, 1999). Next, environmental concerns received growing attention in policy making and planning. After the reunification of 1989, these concerns retreated into the background, because planning was faced with new challenges. Investors were eager to develop in the former GDR and streamlining laws were taken up in the Federal Building Code in 1993, in order to facilitate and accelerate development, e.g. housing. These speed-up measures invoked criticism for compromising environmental protection goals and restricting public participation (Jänicke and Weidner, 1997).

In 1998 the Federal Spatial Planning Act was again amended. Further deregulation and sustainability were key objectives (Albers, 1999). In the years that followed, regional networks were set up and new informal instruments were adopted to make planning more dynamic and flexible, e.g. through voluntary agreements between interest groups and public authorities, or contractual agreements between municipalities and private companies (BBR, 2001).

⁴⁸ Bundesraumordnungsgesetz, (BROG)

The Federal government enacts all legal regulations that affect local land-use planning or *Bauleitplanung*. These regulations address types of plans, range of potential contents, planning procedures and issues of citizen participation. The Federal Construction Law⁴⁹ lays down the principles for land-use planning. The Building Code⁵⁰ sets out the allowed functions in the different zoning-types as well as the building regulations (Lambrechts and Spaans, 1997)⁵¹. Over time, municipalities have increasingly been confronted with new decisions and regulations taken at higher levels. Local authorities' discretion has been reduced with reference to the overall common good (Turowski, 2002).

Spatial planning in Germany has been the prerogative of an 'inner circle' of experts, and is generally regarded as highly complex, technocratic and inaccessible. Efforts at participative local planning - beyond formal consultation - have not been widespread and generally, public stakeholders and the media show little interest in spatial planning (neither in plans nor in decision-making on these plans) (Kunzmann, 2001).

State and regional planning: NRW

Different states in Germany have different state-level planning histories. In NRW, the sixties and seventies were a period when planning was rather influential, but the subsequent decades witnessed decreasing political attention for planning issues (Kunzmann, 2001).

The State Planning Act⁵² elaborates the federal laws and together with the State Development Programme⁵³ (LEPro) it provides the legal basis for planning. It addresses fundamental ideas and goals for the spatial structure and spatial development, as well as sectoral goals. Various ministries are involved in this planning. The State Development Plan⁵⁴ (LEP) evolves from this programme. The present LEP NRW was adopted in July 1995 and stated aims are to bring social and economic demands in line with ecological spatial functions. Districts and municipalities elaborate the LEP goals in their plans (figure 6.2).

NRW is subdivided into five districts or *Bezirke*, where the regional commissioners perform governmental tasks in spatial planning, and co-ordinate and mediate between the state ministries and local authorities (Turowski, 2002). The districts are responsible for the

⁴⁹ Baugesetzbuch, (BauGB) 1987

⁵⁰ Baunutzverordnung 1990

⁵¹ Bundesnaturschutzgesetz and Bundesimmissionsschutzgesetz

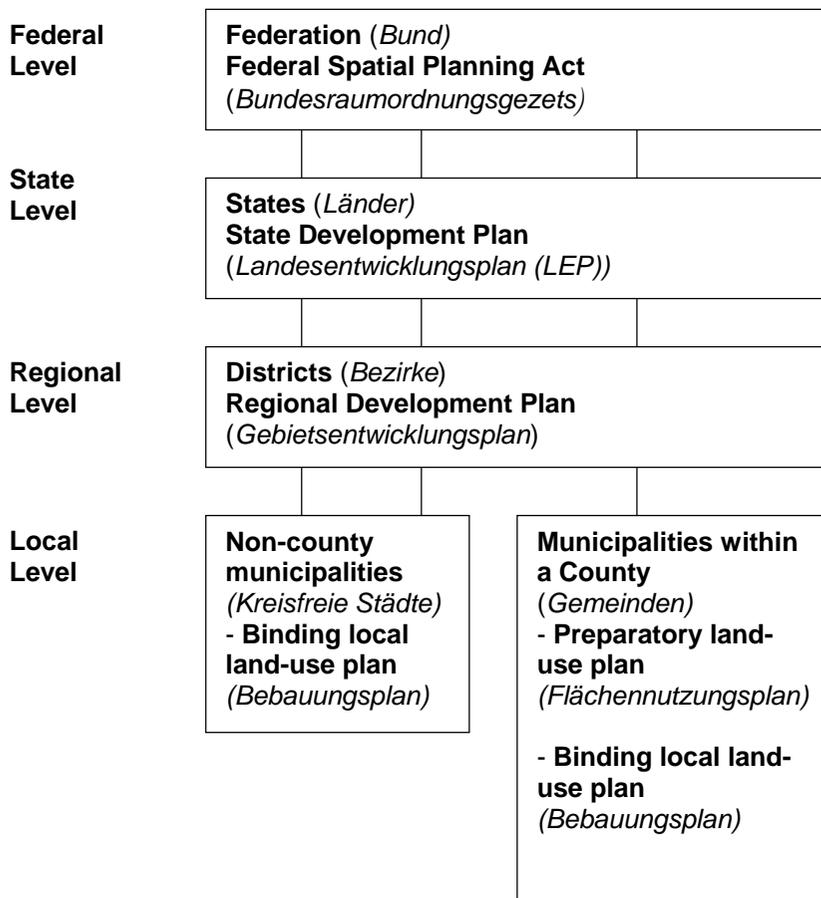
⁵² Landesplanungsgesetz

⁵³ Landesentwicklungsprogramm

⁵⁴ Landesentwicklungsplan

implementation of state policies, and not intended to play an autonomous political role on their own behalf (Knapp *et al.*, 2004; Kunzmann, 2001). Regional development plans⁵⁵ (GEP) formulate regional goals for spatial planning and must be attuned to one another and to the state level plans. The plans are legally binding for the municipalities and cities.

Figure 6.2 German planning at different levels of government



Source: EU Compendium, 1999

Local planning

Municipalities and cities make up the smallest administrative units. A distinction can be made between non-county municipalities - cities or

⁵⁵ Gebietsentwicklungsplan

metropolitan authorities (*Kreisfreie Städte*) - and municipalities (*Gemeinden*) that are part of a county or *Kreis* (figure 6.2). A county is an association of municipalities that jointly arranges for functions that exceed the resources or capacities of single municipalities, like waste disposal, public transport, cultural events etc. It is headed by a County District Commissioner (Lambregts and Spaans, 1997).

Table 6.7 Procedure for adopting a preparatory and binding local land-use plan

Local land-use plan procedure

1. Preparatory phase: draft preparation and consultation with higher administrative authorities. The decision to prepare a plan is passed by a resolution of the municipal council and publicly advertised.
 2. Preliminary public participation: the public is informed and there is a hearing of comments. Public stakeholders - e.g. public agencies, nature protection organisations - and neighbouring municipalities are informed and participate.
 3. Preparation of draft plan and consideration phase:
 - A - assessment of compliance with the regional and state development plans
 - B - assessment of environmental impact (Environmental Impact Assessment is part of the procedure of adopting local land-use plans).
 - C - consideration of public and private interests, including comments put forward in phase 2
 - D - preparation of draft plan and council resolution to put it on public display
 4. Second phase public participation: draft plan is publicly displayed for one month, announced in local newspapers and the public is invited to make written or verbal comments. All comments are considered and if new issues arise, which are to be included in the plan, the draft plan returns to phase 3.
 5. Adoption and approval stage: the final draft is devised and passed by the council. For a preparatory land-use plan this involves an ordinary resolution, for a binding land-use plan a local statute. All land-use plans must be approved by a higher level of administration, which checks it for procedural or legal mistakes.
 6. Coming into force: the municipality publicly announces the approval and the plan comes into force. Any remaining objections can be lodged in lawsuits at the administrative courts.
-

Source: EU Compendium, 1999:65; Turowski, 2002

A municipality that is part of a county devises a *preparatory land-use plan*⁵⁶ that indicates the intended development (table 6.7). This plan must be attuned to higher-level plans, in terms of spatial planning goals and sectoral goals like nature protection or energy policy. The plan is revised after ten to fifteen years, and must be approved by the district (Spaans en Lambregts, 1997). The preparatory land-use plan is binding for all levels of administration but not for the private sector. On the basis of this plan,

⁵⁶ Flächennutzungsplan

a municipality can devise a land-use plan that is legally binding for both government and private sector (table 6.7). This *binding land-use plan*⁵⁷ covers only part of the area that the preparatory land-use plan addresses. It stipulates the types of permitted land-use in a more detailed manner. The binding land-use plan is subject to an environmental impact assessment (EIA) procedure (EU Compendium, 1999). Non-county municipalities or cities have no preparatory land-use plans. When they devise a binding land-use plan, it must be approved by the state. For both the preparatory and the binding land-use plan, a corresponding landscape plan and green disposition plan exist, based on federal and state nature protection laws.

Privilegierung for wind power

NRW changed the Nature Protection Law in 1994 to facilitate the development of projects comprising one or two turbines. The revised law exempted these from the requirement to arrange for compensation for the impact of wind schemes on the local landscape - e.g. through planting vegetation (Interview with EnerSys, 2005; MWMTV, 1998:29).

In various states there were calls (from wind project developers) to facilitate the siting of wind projects. Local permitting procedures were regarded as lengthy, inconsistent and complex. These calls eventually resulted in a revision of the Federal Construction Law⁵⁸ in 1997. The amendment privileged the development of wind schemes in outlying areas where building or development was usually only allowed under strict conditions or when it accommodated specific agricultural functions (BMVBW, 1997). An instrument to guide wind power developments was introduced: municipalities could designate priority zones for wind power development in their local land-use plans (table 6.8). Accordingly, they could identify low-conflict areas - where wind projects were unlikely to raise controversy, and exclude wind power development in potentially conflict-rich areas. In principle, if municipalities have not indicated areas, a wind project developer has the right to choose a site in the outlying area where wind power is 'privileged' (*Privilegierung*). This means that the project developer cannot be denied the right to realise the project - as long as it meets with the criteria needed to get building permission.

In NRW, a 1993 REN-programme evaluation critically addressed the impact of wind power on landscape and flora and fauna as well as the issue of noise nuisance. The report further examined the options of compensation measures to deal with these impacts (Borchers, 1993). The

⁵⁷ Bebauungsplan

⁵⁸ Baugezetzbuch

NRW government commissioned various evaluations, e.g. on how municipalities were planning for wind power, in the light of the upcoming *Privilegierung*. The study revealed that municipalities had difficulties in planning for wind power, e.g. in weighing different interests, dealing with nature and landscape impact issues, and in aligning their plans with regional plans (Allnoch and Schlusemann, 1996). The NRW government attempted to both encourage and facilitate planning for wind power by adopting the 1996 Wind Energy Ordinance⁵⁹, which was renewed in 2000 and again in 2002. It elaborates on planning and permitting procedures, the workings of the EU Birds Directive and Habitats Directive, and the interests of nature and landscape protection as formulated in federal and state legislation. The NRW government strongly urged its municipalities to designate wind priority zones, and to aim at a certain concentration of wind farms in order to preserve open spaces (Allnoch *et al.*, 2002; MVEL, 1995; WEAERL, 2002). Initially, the idea was that by December 1998, all municipalities would have designated priority areas in their preparatory land-use plans (BMVBW, 1997). By the end of 2001 however, only half of the municipalities in NRW had designated areas for wind power. Around 2004 some two-thirds had (WEAERL Entwurf, 2005). NRW districts have also designated priority areas for wind power development in their regional plans, mostly at a later point in time than the municipalities (Interview with EnerSys, 2005).

Project planning for wind power

In principle, the criterion for approving a new development at the local level is compliance with the binding land-use plan if there is one, and otherwise with preparatory land-use plan. Usually the developer notifies the municipality of the intention to build a wind project, and checks if a binding or preparatory land-use plan is available and if wind priority zones have been indicated. Should a municipality not have designated priority zones for wind power nor be willing to do so, it will generally not be keen on wind projects. Many developers will therefore first plan projects in areas where wind priority zones have been indicated or where municipalities are willing to designate wind priority zones (Interview with EnerSys, 2005).

Before an application is submitted, the developer has to deliver studies on wind potential, technical issues, sound emissions, shadow, landscape impact, bird impact, economic impact, and if required an environmental impact study. Next, fine-tuning with permitting officials

⁵⁹ Windenergie Erlass

takes place - those with competences in Nature Protection, Building, and Aircraft Control etc. An application for connection to the grid has to be done with the regional energy supply company.

Compensation for the infringement on the landscape has to be negotiated with the municipality. It may involve the planting of bushes or similar measures and is paid for and arranged by the developer (Interviews with ABO Wind and EnerSys, 2005). When all these issues have been sorted out, the application for a building permission is submitted to the competent authority - either the local authority, the district, or the State Environmental Office, depending on the size of the project (figure 6.3).

Table 6.8 Designating areas for wind power development

Procedure for designating wind power areas

1. Planning decision to facilitate the siting of wind turbines. In this phase, a municipality can involve citizens and stakeholders
2. Formation of a planning concept. Setting the specific municipal rules and elaborating these in a planning concept.
3. Preparatory land-use planning to come to an indication of priority zones for wind power.
4. Defining potentially suitable areas and areas where wind power is to be excluded.
5. A - Existing preparatory land-use plan and/or binding land-use plan must be changed. The law requires consultation and room for comments. People can submit representations and objections and the municipal council must consider these. Neighbouring municipalities must be consulted, to prevent conflicts about wind projects in border areas.
B - If no preparatory land-use plan exists, a municipality that wants to indicate areas for wind power development must devise one. If there is a preparatory land-use plan that includes priority zones for wind power development, it is not required to devise a binding land-use plan.

Source: WEAERl, 2002

The designation of priority zones (table 6.8) at the level of the binding land-use plan involves the most detailed indication of where exactly can be built. This plan addresses criteria that need to be met to obtain a building permit, such as technical issues, compensation measures, and issues related to sound, shadow, and height of the turbines. It can make things easier for a developer if a binding land-use plan is present, because in that case he knows what criteria to take account of. On the other hand, some municipalities have designated areas with poor wind conditions and set out detailed but very restrictive specifications on the maximum height of turbines, hence effectively impeding wind power development (Interviews with ABO Wind and Bürgerwindpark

Baumbergen, 2005).

In case a municipality has no binding land-use plan, there are three options. First, the application for a wind project can be dealt with within the framework of the preparatory land-use plan, which means that many things will still need to be inquired into during the permitting process. In NRW many municipalities only have a preparatory land-use plan with priority zones for wind power development. A second option is that the municipality makes a binding land-use plan. A third option is that the developer or investor makes a project-based binding land-use plan⁶⁰ and bears the planning costs. This was introduced in 1993 to accelerate planning, by holding out the option to investors to take the initiative when municipalities lack interest or money to pay for the draft of a binding land-use plan. It should be noted that in this case, the municipality still retains the right to indicate preferences and set criteria.

Permitting Procedure in NRW

For one or two turbines, only a building permit is required, which is granted by the county or city. This process of granting a building permit involves no consultation.

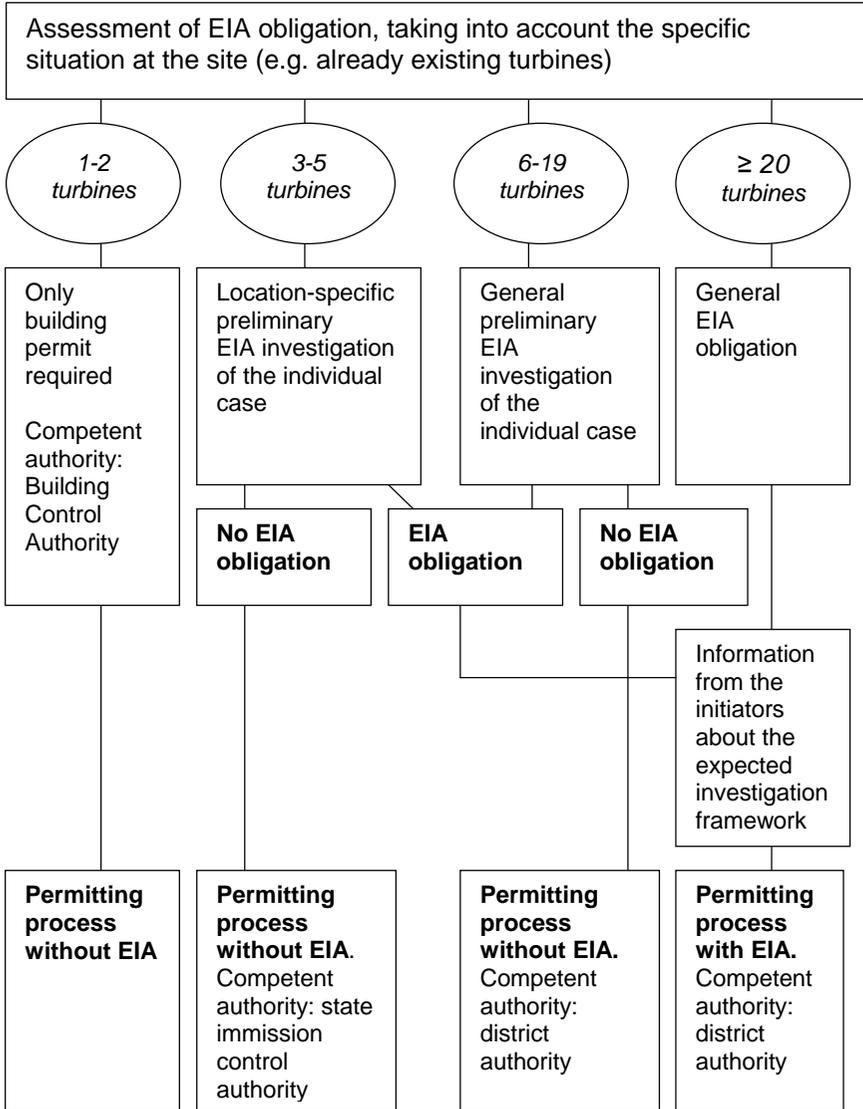
Wind projects larger than 2 wind turbines go through the Immission Control Procedure⁶¹. Since the adoption of the Environmental Impact Assessment Act in 2001 (EU Directive 2001/42/EC), a preliminary environmental impact inquiry and/or an environmental impact assessment (EIA) is part of this procedure. Whether or not the EIA is performed depends on the amount of turbines and the outcome of the preliminary inquiry (figure 6.3). Where previously formal stakeholder consultation only took place in the process of designating priority zones for wind power (changing the land-use plan), since 2001 consultation is also required during the Immission Control Procedure if it involves an EIA. Any appeals against the granting of permission should concern aspects that affect the complaining party personally (e.g. noise, shadow) and should be addressed to the permitting authorities. Generally, the permitting process is regarded as a clear process with unambiguous rules and procedures. This is related to the fact that, next to the building permit, a single comprehensive permit is granted, which is the responsibility of the immission control authority (at district or state level). This authority coordinates the involvement of the various relevant authorities, which must give permission if the

⁶⁰ *Vorhabenbezogenes Bebauungsplan*

⁶¹ *Immissionsschutzrechtliches Verfahren* (Since end 2005, all projects enter this procedure (Interview with EnerSys, 2005))

application complies with relevant legal provisions - i.e. land-use plans and sectoral laws and requirements (BMU, 2003).

Figure 6.3 Permitting procedure for wind power applications



Source: Allnoch *et al*, 2002; Interview with EnerSys, 2005

Discussion: privileged turbines become controversial

Wind projects in the eighties and the early nineties were mostly locally owned, e.g. by farmers or as Bürgerwindparks. These projects were initiated by local actors who were close to the local political and social context. A project development approach in which (part of) the local community was involved helped to garner local social acceptance and prevented the early rise of local opposition against wind projects. This positive context for implementation locally resulted from the type of project developers (locally based) and their projects (locally owned), rather than from any planning tradition. Participative planning that goes beyond formal consultation has not generally been a feature of NRW planning. Before the introduction of the EIA-directive (2001), there was no formal obligation to involve citizens in the permitting process for wind projects. Consultation was only required in the process of designating priority zones for wind power. However, municipalities usually did not extensively call upon their citizens to participate in this process (Interview with EnerSys, 2005; Van Erp, 1997).

In the latter part of the nineties, wind projects were increasingly developed and owned by companies and private individuals from outside the local community. The project development approach changed and local participation (financially or in project planning) became less apparent. After the *Priviligierung* in 1997, wind power implementation accelerated in many locations, increasingly taking citizens by surprise (Interview with EnerSys, 2005). Local opposition against wind projects emerged and increased, also from the side of municipalities. Although the *Priviligierung* had made planning for wind power mandatory, half of the NRW municipalities still had not indicated areas by 2001, which may well be a sign of opposition against a perceived top-down prioritisation of wind power and a curtailment of their powers of self-government. For instance, municipalities did not have the option to designate a location for a biomass installation and then be exempted from the requirement to designate locations for wind schemes. On the other hand, municipalities have been provided with an instrument that enables them to exclude wind power developments as well, by setting restrictive designations.

After 2001, resistance against projects increased further. Most new initiatives in NRW are confronted with local anti-wind groups. To a certain extent this may be due to the fact that the best sites have already been developed. New projects are increasingly planned in potentially conflict-rich localities (Interviews with ABO Wind, EnerSys (2005), and Nabu NRW (2003)).

NRW state planning follows broader political goals and during the years of the SPD and after 1995 the SPD-Greens governments, wind

power could count on firm support. The Wind Ordinances attempted to encourage wind power developments by clarifying the permitting and planning framework. Each new ordinance was preceded by consultation with various stakeholders. In 2002, at one of these consultations, both planners and nature and landscape protection organisations called for a concentration of wind schemes and for the designation of areas on a regional scale, for the sake of landscape and nature protection, and the preservation of open spaces (Interviews with Nabu NRW, Münster district (2003), Paderborn municipality (2004)).

6.3.3 Environmental policy domain

In the seventies, the federal government started to formulate principles for environmental policy, of which the precautionary, the ‘polluter-pays’ and the cooperation principle became key. The precautionary principle in particular provided legitimacy to stringent pollution control standards (Weale *et al.*, 2003). Environmental policy was characterised by a command-and-control approach, devised on the basis of the *Stand der Technik* - technical engineering and economic assessments (Jänicke and Weidner, 1997).

During the reign of the centre-right coalition in the eighties, worries about *Waldsterben* and smog, as well as the entry of the Greens in the Bundestag in 1983, raised the profile of environmental policy. A separate environmental ministry was set up in 1986. The policy concept of ecological modernisation gained support across political parties. It involved the idea that economic growth and pollution flows could be decoupled and that environmental protection and economic growth could form a partnership (Weale *et al.*, 2003). What made the concept attractive was that it aimed to improve ecological and economic efficiency within the framework of current economic and market dynamics (Weidner, 2005). New green industries and technologies were supported and became the motor of ecological modernisation, making Germany well-positioned in the international market for environmental technologies (Jänicke and Weidner, 1997). The support for wind power fitted well with this ecological modernisation drive, as both economic and ecological aims were pursued.

After the waning of environmental concern resulting from reunification and economic recession in the early 1990s, the red-green coalition placed climate change firmly back on the agenda in 1998. Sustainable development and Local Agenda 21 (formulated at the Rio Conference in 1992) even became binding guidelines for spatial planning (Blotevogel, 2000). However, the commitment to Local Agenda 21 activities, which emphasise broad local public participation, has not

materialised (Weidner, 2005). While the concept of sustainable development gained wide rhetorical support, concrete policies reflected a continued orientation towards the more practicable ecological modernisation concept. The technocratic approach of the early years made way for market-based instruments, voluntary agreements, and (in)formal cooperation between the government, industry and environmental organisations (Jänicke and Weidner, 1997; Wurzel *et al*, 2003).

Institutionalisation of environmental concern

The German corporatist system has opened up to environmental groups from the eighties onwards. Increasingly, environmental organisations have provided their expertise as input into the policy process (Jänicke and Weidner, 1997). The environmental policy domain has itself become institutionalised, helped by the early growth of the Green party⁶² (Weale *et al*, 2003). Already in 1979 they were represented in a state parliament. After the 1983 federal elections they entered the national parliament and around 1994 they had become the third largest party in the national parliament. In NRW (as of 1995) as well as in several other states, they became coalition partners with SPD. Hence, because of the federal structure, the Greens could influence policy making by forming these coalitions with the SPD (Jänicke and Weidner, 1997; Weale *et al*, 2000).

This has been of major importance for the uptake and acceptance of wind power in both society and politics. The specific focus of ecological modernisation policies - combining environmental goals with economic aims - has clearly been reflected in the approach of the NRW government (which was an SPD government from 1980 until 1995; and after 1995 a coalition between SPD and Greens).

6.3.4 Discussion: policy domains and policy framing

National and state level policy frames

At the national level, two policy frames were in conflict throughout the nineties and still are: the renewables frame and the frame represented by the conventional energy sector and the economic ministry. The first frame was dominant throughout the nineties. However, adaptations in the feed-in tariff system were made several times, in reaction to the liberalising energy market and under pressure of the economic ministry and the conventional energy sector.

⁶² Die Grünen; after 1989 Bündnis 90/Die Grünen

The NRW government was unambiguous in its political commitment to renewables. However, at all times, a strategy was presented that would involve room for both fossil resources and renewables - domestic sources both. An outright struggle between conventional energy interests and renewables interests was prevented through an integrated policy approach. In later years, the economic and employment benefits, and the export potential for renewables became increasingly the focus of attention. After 1998, explicit statements on the forerunner role of the state made way for the conception of the state as mediator and facilitator - through the State Initiative for Future Energies (MWMTV, 1998; 1999). All in all, no significant change in framing wind power and renewable energy policy has taken place in NRW until the end of 2004.

Converging domains?

The decentralised administrative structure provides room for states to adopt innovative policy (Wurzel *et al*, 2003). This is what happened in NRW with wind energy. The NRW approach was characterised from early on by efforts to combine environmental, economic and employment concerns and, to a lesser degree, spatial planning. Taken together, federal and NRW level policies had the effect of stimulating diversity and supporting grass roots initiatives. This triggered technological innovation, market development and an early rapid increase in installed capacity, mainly by farmers and through locally owned projects. Wind projects represented concrete political, economic and environmental goals that were attractive at a local level, since local stakeholders were involved. This forestalled early local opposition against wind projects.

In the course of the nineties, both the maturing of the wind sector and the *Privilegierung* affected the conditions for wind power project planning locally. The companies involved in project development professionalised and the number of locally owned projects diminished. This, together with the absence of a participative planning tradition, resulted in decreased local involvement in planning and project development. The prioritising of wind turbines in planning facilitated implementation, but also triggered resistance from municipalities, nature protection organisations and citizens' groups. Resistance increased especially after 2001, albeit at a moment when an impressive level of installed capacity had already been reached (1,010 MW in 2001).

6.4 Policy communities

Early grass roots movement

The anti-nuclear and environmental movement prompted an active search for alternatives to conventional energy generation, and inspired engineers and technical universities to develop alternative energy technologies. In 1974, the German Association for Wind Power⁶³ was set up mainly by self-builders. Around 1985, the more industrially-oriented Interest Association for Inland Wind Power⁶⁴ was set up, as well as the German Wind Energy Association (BWE)⁶⁵ and the technically oriented Association to Promote Wind Energy (1985)⁶⁶.

The Öko-Institut was established in 1977. Together with other new research institutes, it criticised the favourable assessments of nuclear power and provided alternative research and studies (Reiche, 2002b). The Förderverein Solarenergie (1986), a renewables association, introduced the concept of ‘cost covering payment’ for renewable electricity, which preceded later ideas for a feed-in tariff system (Jacobsson and Lauber, 2006). Eurosolar (1988) lobbied for renewables and mobilised support from members of parliament. Until halfway the nineties, project developers were locally based, e.g. private individuals, self-employed people, farmers and local utilities. Various citizens’ wind farms (*Bürgerwindparks*) were set up in these years, encouraging local involvement, acceptance and engagement. People and associations that were involved with various renewables, collaborated in their early efforts to reach a better supportive framework for renewable energy developments.

Manufacturing and related industries

After the fiasco that befell the 3 MW Growian in the eighties, aerospace companies stopped developing wind turbines. New companies and companies that originated from engineering and shipbuilding were more successful. Turbine manufacturer Tacke developed from a gearbox manufacturer, Husumer Schiffswerft (HSW) was originally a shipyard. Enercon, a small engineering firm that started in 1984, became Germany’s largest turbine manufacturer, with thousands of employees (Krohn, 1998). By the end of eighties, manufacturers were already building reliable turbines. Over time, the accumulation of expertise and

⁶³ Deutsche Gesellschaft für Windenergie e.V.

⁶⁴ Interessenverband Windkraft Binnenland e.V.

⁶⁵ Bundesverband Windenergie (BWE)

⁶⁶ Fördergesellschaft Windenergie e.V. (FGW)

knowledge enabled them to gradually enlarge the turbine sizes. Several technical universities and engineering firms were involved in this learning process. As subsidies decreased over time, market concentration became apparent.

In NRW, companies in component supply as well as the metal industry prospered thanks to the growth of the wind power market. Industry-related actors, ranging from equipment producers to service providers supported wind power lobbies in times of political turmoil. The VDMA (German Engineering Federation), a large and influential industry branch, provided strong backing for a continuation of the feed-in tariff system. The employment generated by the wind power developments encouraged the trade unions IG Metall and ver.di⁶⁷ (representing public service employees) to become advocates of wind power as well.

From Bürgerwindparks to Planungsburō's

At first, many wind projects were locally owned. In the early nineties, small companies specialised in planning and realising wind projects, but in later years it were predominantly the medium-sized and large ones that survived. Wind projects in NRW have over time been developed by a variety of actors: farmers, local individuals, new developer companies, planning offices, turn key developers and a few energy companies. The project development approach that encourages local ownership has become increasingly exceptional. Moreover, as the opportunities for developing wind projects within NRW (and Germany as a whole) have become sparser, developers are increasingly looking abroad.

Research and advice

Along with the expansion of wind power, research institutes and consultants have increased in number. The Dewi research institute (1990)⁶⁸ has been of great value for turbine manufacturers, e.g. through its wind test sites (Bergek and Jacobsson, 2003). Dewi has also helped to bring together industry, customers and government. Nowadays, it is an independent consultant, providing services for wind energy nationally and internationally.

Dena (German Energy Agency, 2000) does research on energy efficiency and renewables, as well as initiating and coordinating projects and campaigns. Dewi and Dena provide research to both the national economic and environmental ministries. Usually however, the respective

⁶⁷ Vereinte Dienstleistungsgewerkschaft (ver.di)

⁶⁸ Deutsches Windenergie-Institut GmbH (Dewi)

ministries commission research from different institutes. The Federal Environmental Agency⁶⁹ (UBA, established in 1974) has been an important advisory agency for BMU.

Naturschutz und Klimaschutz

The German Association for Environmental and Nature Protection (BUND, established in 1975)⁷⁰ has its roots in anti-nuclear struggles, and the fight against (coal) pollution and climate change. The Nature Protection Association (Nabu)⁷¹, originally a bird protection organisation, is a general nature and environmental protection organisation since 1990. Nabu works together with Naturstrom AG and offers its members green power: Nabu-Naturstrom. Both BUND and Nabu support wind energy, but not unconditionally. In NRW, they have argued for the designation of wind power zones on a regional or state level, so that sensitive areas can be better protected. Nabu has designed a checklist for developers. Other relevant organisations are the German Nature Protection Ring (DNR),⁷² an umbrella organisation with some 94 member- organisations, including Nabu and Bund. The NRW State Association for Nature Protection and Environment⁷³ (LNU, 1976) is an umbrella organisation for smaller groups in NRW and cooperates with Nabu NRW and BUND NRW. All these organisations have had to find a balance between local nature protection and global climate protection (*Naturschutz und Klimaschutz*). This is sometimes difficult, since local branches and members are often more critical of wind power than the national branches (Interview with Nabu Deutschland, 2004).

Although Nabu and BUND have joined in the support for wind power, they do not cooperate intensively with actors like BWE or with environmental organisations like Greenpeace and the World Nature Fund (WWF). The latter count as unconditional supporters of wind power. After the liberalisation in 1998, Greenpeace started the campaign “*Stromwechsel*” (Power Change), to encourage people to sign in for renewable energy. Next, it established a cooperative to deliver sustainable electricity and it set up a company to realise renewable energy projects in Germany and abroad.

⁶⁹ Umweltbundesamt (UBA)

⁷⁰ Bund für Umwelt und Naturschutz Deutschland (BUND)

⁷¹ Naturschutzbund Deutschland (Nabu)

⁷² Deutsche Naturschutzring (DNR)

⁷³ Landesgemeinschaft Naturschutz und Umwelt Nordrhein-Westfalen e.V. (LNU)

Bürgerinitiative

Citizens' initiatives against wind projects have mushroomed since the latter part of the nineties. For instance, in 1996 the Federal Association for Landscape Protection (BLS)⁷⁴ was established in NRW, to fight the perceived landscape devastation caused by wind turbines. BLS tries to gather opponents to influence (local) politicians, with limited success (Interview with BLS, 2003). The Association for Health and Landscape Protection⁷⁵ claims to represent some 137 members, consisting of individuals, citizens' initiatives, and organisations. Its focus is on NRW and its website (www.sturmmlauf.de) provides extensive information and advice for (potential) opponents or citizen groups. Since 2001, local initiatives against wind power have spread widely in NRW and become increasingly adamant.

At the national level, the Darmstadt Manifesto (1998) has been signed by over a hundred academics who request an immediate withdrawal of financial support for wind power. In addition, some three hundred citizens' initiatives have signed a Resolution of Citizens Initiatives against Wind Turbines, addressed to all levels of government.

Conventional energy coalition

The conventional energy sector, represented by VDEW (Association of German Utilities), realised too late how successful wind power was becoming. Traditionally, its political leverage on the various levels of government has been considerable. The economic ministry (BMWA) has historically represented the conventional and nuclear energy sector interests. In the struggle to secure these interests for the future, this coalition has several times attempted to impede the continuation of the feed-in tariff system. The Federal Association of German Industry (BDI), the Association of the Industrial Energy and Power sector (VIK), the Association of German Utilities and Regional Energy Suppliers (VRE) and the Association of German Network Operators (VDN) also belong to this coalition.

Government performance: adversarial relations at federal level

NRW ministries were more successful in collaborating than the federal ministries. In 1990, the NRW Energy Agency was set up to give advice to small and medium-sized enterprises. In 1996, the State Initiative for Future Energies⁷⁶ was established, to provide a strategic platform for

⁷⁴ Bundesverband Landschaftsschutz (BLS)

⁷⁵ Verband für Gesundheits- und Landschaftsschutz e.V.

⁷⁶ Landesinitiative Zukunftsenergien

industry, energy generators and users, manufacturers, research and science, and consultants. The aim was to facilitate market expansion and export. Different ministries took part in this initiative. Next, working groups were set up to promote exchange and innovation, and through existing organisations - e.g. consumer organisations - advice on various aspects of energy use and production was disseminated. The Wuppertal Institute für Klima, Umwelt, Energie did research on the conditions for the energy transition in NRW.

At federal level there was a constant conflict between the BMU and the BMWA. Parliamentary Committees, consisting of both parliamentarians and experts, played a major part in determining the outcome of the struggles around renewables. Interdepartmental cooperation remained weak. In 2000, the BMWA initiated an Energy Dialogue. Various stakeholders were invited to join a discussion about the future energy policy, but Nabu, WWF and Greenpeace stepped out because they felt the final text was too much in line with the BMWA and the energy companies' objectives (Interview with Nabu Germany, 2004).

Table 6.9 Mobilisation of support

	70s-80s: Grass roots	1991 to 1998: Broadening movement	After 1998: Changed constituency
Grass roots wind power initiatives	Crucial for early support mobilisation	Crucial but decreasing	Decrease
Grass roots action against wind	-	Emerging	Further increase
Wind power sector	Linked to grass roots	Professionalising, build-up broad and strong lobby	Strong lobby
Conventional and nuclear energy sector	Not supportive of wind power	Struggle against wind power	Struggle against wind power
Environmental interests	Linked to grass roots in wind power development	Actively pro-wind	Actively pro-wind
Nature & landscape interests	Pro-wind (anti-nuclear, anti-pollution)	Pro-wind, but not unconditionally (internal divisions)	Pro-wind, but not unconditionally (internal divisions)

Renewable power through broad interest representation

In the eighties, wind power developments started at the grass roots level, where support was mobilised from the bottom upwards. Policies that were well-adapted to this level raised investments from many private actors and encouraged societal involvement in wind projects. The economic impact of wind power developments garnered support from industrial and employment representatives. Wind project developers and manufacturers also committed themselves to other renewables' interests to exert leverage on the NRW and other state governments. They extended their lobby to improve the political, economic and legal framework conditions at federal level. In the course of the nineties, environmental organisations, solar associations, BWE, BEE, VDMA, trade unions, state and national level politicians all joined in the struggle for renewables. Hence, what began as a grass roots and environmentally motivated movement, broadened into a coalition that represented environmental, economic, industrial and employment interests, involving levels well above the grass roots and powerful enough to withstand the established conventional and nuclear interests. The strength of the policy community around wind power lies in the diversity of interests and political affiliations, represented by actors at various levels. BWE has grown into a professional branch with representation from the regional to the EU level. Its decentralised organisational structure reflects the bottom-up roots. However, the constituency of the wind power policy community has changed with the maturing of the wind power sector, with a decrease of locally based wind projects and an increase in commercially driven larger companies (table 6.9). As a result, the ties to the local level of implementation have weakened, which is aggravated by the increase in mobilisation of support against wind projects through citizens' initiatives at the grass roots level, from the mid-nineties onwards.

6.5 Institutional capacity building: losing touch

Institutional capacity for wind power implementation refers to the involvement of a variety of actors and their knowledge, in order to mobilise support so that this new technology can become embedded in the existing practices and routines of society. NRW presents a case of relatively successful institutional capacity building, because early wind power developments became embedded in local social, political and economic contexts. Local ownership and existing grass roots energy initiatives ensured this process of embedding. Politically, the

institutionalisation of the ecological modernisation approach helped to raise the profile of renewable policies, as it involved the integration of both ecological and economic development perspectives. Through the creation of a new wind power sector, local and supra-local economic benefits were generated. This precluded early opposition, and before local opposition became more widespread, an impressive level of installed capacity had been reached already.

The four stories at the beginning of the chapter roughly indicate how different stakeholders appreciate wind power developments. The tensions and conflicts that the four stories reveal concern both conflicts at the level of national politics, and conflicts at the level of implementation. The former existed from the beginning onwards and concern the still continuing struggle between the renewables proponents on one side and the coalition of the federal economic ministry, the conventional energy sector and energy intensive industry on the other side (reflected by the *Matured Grass roots*-story and the *Pampered Industry*-story).

The conflicts at the local level however, are of more recent origin. They are partly caused by the changed relationships of between project developers and locally based stakeholders as well as by a lack of institutionalised participative planning approaches at municipal level, in combination with an accelerated proliferation of wind turbines after 1997 and especially since 2001 - due to the renewed EEG of 2000 which improved the conditions for inland wind project development. As a result, wind projects were increasingly perceived as harming environmental, landscape and other local interests. The *Balancing Naturschutz and Klimaschutz*-story reveals the concerns about a continuing implementation in the face of decreasing acceptance from those worried about landscape impact, nature and environmental protection. Moreover, support has been mobilised against wind power developments. Citizen groups that oppose wind projects have mushroomed. Although their main argument relates to visual impact, they sometimes employ arguments similar to those of the conventional energy sector, for instance, that wind power is too costly (*Pampered Industry* and *Save our Heimat*-stories).

Wind power has outgrown its grass roots, but in the process it has lost out in terms of local support. The wind power sector has increasingly focused on political lobbying, to safeguard economic feasibility and facilitate siting, while losing touch with actors at the level of implementation. Institutional capacity building, which is linked to the local level of implementation, has made room for capacity building aiming at political guarantees for continued implementation. The *Matured*

grass roots-story includes arguments from different types of project developers. Those involved from early onwards, still regard local ownership and local involvement in planning as crucial. Other developers however do not regard this as a feasible or useful strategy. A decreased engagement with the local level has narrowed the sensitivity for concerns at the local level. The *Matured grass roots*-story casually brushes aside concerns that motivate opposition against wind projects, hence denying the legitimacy of local concerns. This attitude passes over the fact that local social acceptance once formed the basis of successful developments. Moreover, in reaction to increasing dissatisfaction within communities, municipalities, but also regional and state governments can adopt more restrictive rules in their development plans with regard to the height of turbines, the maximum distance between turbines, etc. In other words, if political support decreases at various sub-national levels, there are several possibilities to effectively impede further implementation or repowering (replacing old turbines with new ones), regardless of a continuation of the feed-in tariff system. Support against wind power can also be mobilised from the bottom-upwards.

7 *Identifying perspectives across cases*

7.1 Steps involved in Q sort analysis

Q Method: measuring subjectivity

The Q methodology is a quantitative technique to clarify, evaluate and compare human subjectivity (Robbins and Krueger, 2000). We adopted this method in order to highlight differences in perspectives on whether, how and by whom wind power should be implemented. The Q sort analysis was done across the three cases, which means that all actors were pooled.

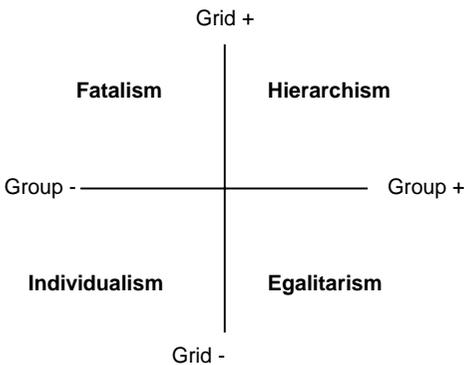
Developing opinions

The first step in the application of the Q method was to construct a set of interrelated opinions about conditions for and processes around wind power implementation; a concourse of statements was developed, which should contain ‘all’ relevant opinions on this subject matter. These statements represent opinions, not facts. The opinions partly concerned the importance of economic considerations, spatial planning issues and environmental considerations in relation to policy-making, planning and implementation of wind power. They were developed on the basis of existing case studies and literature study (as discussed in chapter 1). Next, statements were developed on diverging preferences as to how decision-making processes should proceed. These statements were developed with the help of Cultural Theory (or ‘grid-group theory’) (Mamadouh, 1999; Thompson et al, 1990). This theory is based on a framework introduced by anthropologist Mary Douglas, and has been extended into political science (Douglas and Wildavsky, 1982; Thompson et al., 1990). Social, cultural and political perspectives are integrated into an understanding of rationalities that are fundamental to arguments used in discussions about environmental change. Whereas the ‘hard’ version of Cultural Theory involves a full explanatory theory, the ‘soft’ version offers a heuristic device or classification scheme (Mamadouh, 1999).

Grid-group reflects the two dimensions of ‘sociality’ as fundamental variables that determine cultural types. *Group* signifies the extent to which an individual is incorporated into a bounded group. The greater the incorporation, the more individual choice is subject to group

determination. *Grid* refers to the rules and prescriptions (institutions) by which individuals are constrained. The more one is bound by prescriptions, the less room remains for individual negotiation (Thompson et al, 1990:5). Viable combinations of grid and group are cultures or (cultural) types. Four types can be placed in relation to each other with respect to the degree of group involvement and the degree of social prescription (figure 7.1).

Figure 7.1 Grid-group dimensions and cultural types



The grid-group typology distinguishes between so-called hierarchical, individualistic, egalitarian and fatalistic positions with regard to decision-making (table 7.1) (Thompson *et al*, 1990). The typology is claimed to be universal, which means that the four fundamentally different outlooks are considered applicable to all domains; hence, also to policy, renewables implementation, spatial planning, and entrepreneurship. It is furthermore claimed that they determine specific views on nature and environmental management (Schwartz and Thompson, 1990). Although these claims to universality and full validity can be disputed (Mamadouh, 1999) the typology is a practical instrument for creating a wide overview of possible opinions and worldviews.

Table 7.1 Four cultural types

<p>Fatalism Binding prescriptions in combination with weak group incorporation</p> <p><i>Social context:</i></p> <ul style="list-style-type: none"> • Individuals are subject to binding prescriptions and excluded from group membership. • Sphere of individual autonomy is restricted. • Individuals are excluded from the group that makes decisions that rule their life 	<p>Hierarchism Strong group boundaries and binding prescriptions</p> <p><i>Social relations:</i></p> <ul style="list-style-type: none"> • Individuals subject to control by others and to socially imposed roles. • Collective is more important than individuals • Division of labour, differentiated roles, hierarchical social relations
<p>Individualism Weak group incorporation and weak regulation or role prescriptions</p> <p><i>Social context:</i></p> <ul style="list-style-type: none"> • Individual neither bound by group incorporation, nor by prescribed roles. • Individual is free to enter transactions with others, as on a market. • Boundaries are subject to negotiation. • Individuals are relatively free of control by others but controlling others is a measure of their position in the network 	<p>Egalitarianism Strong group boundaries coupled with few regulations</p> <p><i>Social relations:</i></p> <ul style="list-style-type: none"> • Group is maintained through intensive relations between group members • Minimal internal role differentiation (low grid) • No individual is granted authority over others

Source: Mamadouh, 1999; Thompson *et al*, 1990

Translated to our domain of research, hierarchical statements reveal preferences for top-down decision-making, for utilising expert and technological knowledge, and a preference for hierarchical solutions to overcome resistance against wind power implementation. Egalitarian statements emphasise co-operation, consensus building, participative decision-making and early involvement of stakeholders in project planning. These statements attribute importance to the role of non-state actors, e.g. the local community and environmental organisations. Individualistic statements reflect a laissez-faire, market oriented and competitive outlook. Unlike hierarchical and egalitarian views, individualist statements bear no moral connotations. Finally, fatalism represents a passive and nihilistic position, held by people who do not believe in the possibility to exert any influence on processes. This type is

often left out in policy studies, as it is considered fundamentally contradictory to policy-making, which, after all, intends to have impact on society. However, we include some of these statements, since some actors may in fact feel that they are unable to influence policy or decision-making. An example of a fatalist view on policy in this field would be “The growing demand for energy and increasing environmental problems cannot be solved by government policy” (Annex C, number 55).

The resulting statements, randomly numbered, were tested both on people who are knowledgeable about wind energy and on those who are not. The statements were then adjusted to accommodate their comments. From the totality of statements, the Q sample was generated, which in our study consists of 60 statements: 10 statements on spatial planning issues, 9 on economic considerations, 6 on environmental issues, 10 hierarchical statements, 10 egalitarian ones, 10 individualistic ones and 5 fatalistic statements (Annex C).

Q sorting and analysis

The next step was to present the statements - printed on cards - to the respondents prior to the interview. The respondents were invited to rank-order the statements, according to the importance they attached to each statement when considering wind power implementation, while keeping in mind the position of the organisation they represent. They rank-ordered the statements according to a forced normal distribution with 12 positions from most to least ‘according to my point of view’ on a large board shaped like figure 7.2. During this process, which took on average 25 minutes, there was room for questions and comments. In the end all boxes contained one card.

The subjects (P-sample) were 56 respondents who represented 53 key actors and three researchers. The latter were social scientists, one from each of the selected countries, who are involved in implementation studies. They were included because they were expected to offer a view from a larger distance. In the Q method, the subjects are treated as variables, whereas the statements are the ‘cases’ that have a ranking number for every separate variable.

the specific features of the established patterns in each of the four perspectives. In particular, significant differences between those patterns are highlighted. For this reason, the five consensus statements are not very relevant in the analysis that follows.

Table 7.2 Factor array matrix sorted by consensus towards disagreement

Statements (random numbers)		Factor Arrays for factor:			
		1	2	3	4
48	The way planning is done (e.g. top-down or via deliberation) determines whether conflicts about the available space are solved and whether a wind farm is actually built.	1	1	0	1
55	The growing demand for energy and increasing environmental problems cannot be solved by government policy.	-3	-4	-3	-4
36	Everyone prefers that new infrastructure like railway lines or wind parks are not built too close to their homes.	3	3	3	2
30	If good arguments exist for constructing a wind farm in one local authority instead of another, then the local authorities will agree to this.	0	0	1	0
39	It is mainly local groups that try to thwart the construction of wind turbines.	0	1	1	2
25	Decisions on infrastructure cannot be made by governments alone, but must come as the result of negotiations with all involved parties.	2	2	2	4
14	Residents don't want to foot the bill for the nation's energy problems by accepting a wind turbine park in their area.	1	2	3	3
2	Incentives should be directed to the development of locations for wind parks and the parties involved in this.	0	0	0	-1
21	In a liberalised market, wind energy can only be a success if governments continue to lend support.	2	0	2	1
26	Every local authority would rather have wind turbines built in another local authority.	1	0	2	2
41	As far as neighbouring residents are concerned, wind farms should be built in some other place where people live.	0	0	1	-1
1	It is usually individuals, like landowners, that block the construction of wind turbines.	-2	0	0	0
53	The system of green energy certificates is good for trade, but not for the environment.	-1	-2	-1	0

34	Top-down planning of wind parks is detrimental to the eventual implementation of wind energy.	1	0	1	2
58	The decision-making surrounding wind energy is an unpredictable process that nobody can control.	-2	-3	-2	-2
44	Professional know-how and scientific expertise ought to play a decisive role in decision-making on infrastructure.	1	1	3	1
38	Local initiatives are decisive for the successful implementation of wind energy.	3	3	1	1
45	Local authorities should always lend assistance for the realisation of facilities with not just a local, but also a general public interest.	2	0	2	0
20	Unrealistic appreciation of the complexity of the planning process by initiators is largely to blame for disappointing levels of wind energy implementation.	0	1	0	3
12	Power companies have no understanding of planning and are unaccustomed in dealing with local actors.	0	-2	-2	0
54	It is mainly environmental organisations that frustrate the construction of wind turbines.	-2	-3	-1	-2
27	For successful implementation of wind energy, it is important that power companies do not have too much influence on wind energy policy.	1	-1	-2	1
17	It is virtually impossible to exert influence on the implementation of wind energy.	-3	-3	-3	-1
23	It is wrong to take decisions without giving neighbouring residents a decisive influence.	3	4	0	4
7	It is not so much the participation and involvement in the decision-making process that is important to the success of a given wind farm project, but the compensation for the disturbance caused by it.	1	-1	-2	-2
40	Local opposition to wind turbines is caused by the way in which decision-making processes take place.	-1	0	-1	2
32	The problem with public input is that it is primarily based on emotions.	2	1	4	0
49	It is imperative to involve all concerned parties locally before the first design for a wind farm ever sees the light of day.	3	3	0	5
47	More citizen participation leads to even more opposition and even less windmills	-3	-2	-1	0
9	When making policy on renewable energy, the environment and not energy supply should be taken as a point of departure.	2	-2	1	1

16	Decisions that are made with the approval of the local community are generally also better decisions.	5	6	4	4
24	Initiators take too little time and effort to fit a wind farm into the existing environment.	1	2	-1	3
50	The government is not capable to adequately direct the decision-making process around wind energy.	-1	-3	-2	1
5	Incentives should be directed to the turbine industry, power companies, and research institutes since these parties determine the successful market introduction of renewable energy.	-3	1	0	-1
13	If wind energy policy is formulated primarily by the Department of Trade and Industry, certain aspects of sustainability and town and country planning will receive insufficient attention.	2	-1	1	3
52	Disappointing implementation of wind energy is usually a result of unnecessarily slow and arduous rounds of decision-making.	0	-1	3	-1
4	When building infrastructure, one need not be so concerned about the environment at the local level because this is already taken into account at the national level.	-2	-1	-3	-5
28	The local community should be able to exert its influence in every phase and on all aspects of the decision-making process.	0	3	0	3
43	Offering financial participation in wind turbine projects to nearby residents is a good way to defuse opposition.	4	4	2	-1
15	Power companies will always try to keep third parties from entering the wind energy market.	4	-1	0	1
33	In the end, it is the market that will determine the success or failure of renewable energy.	-1	3	3	1
37	We can't do anything about the greenhouse effect anyway, so it's pointless to built wind farms.	-5	-5	-5	-2
19	Involving potential opponents to a wind farm in a timely manner will increase its chances of getting built.	3	5	1	0
8	Opponents of wind turbine parks are not willing to compromise. Therefore, it is pointless to involve them in the decision-making process.	-2	-4	0	-2
51	Financial support geared towards wind energy yield is better than financial support for investments in wind energy capacity.	5	1	4	0

10	The input from the public in a decision-making process often shows a lack of expertise.	-1	-1	2	-2
46	Local interests are not taken enough into account at the national and regional level, so that every time a wind farm is planned it is understandable that there is local resistance to it.	-1	0	-1	4
56	In order to successfully implement wind energy, it is a good idea to require local authorities and regional governments to reserve space for wind turbines in their local plans.	4	5	2	-1
60	Planning processes must be carried out rapidly in order to not scare away investors, operators and power companies.	2	1	1	-3
31	Uncertainty about the arrangements for renewable electricity scares off potential investors	4	1	6	1
3	Public consultation procedures make the decision-making process more complicated and lengthy than necessary.	1	2	1	-3
29	A guaranteed minimum price for wind energy delivered to the grid is an important factor in successful implementation.	6	4	5	0
6	Most of the time, important parties are insufficiently consulted during the design phase of wind turbine projects.	1	3	-3	3
42	Onshore wind energy should be left alone. The future lies in offshore development.	-4	-2	-4	2
11	Local opposition to a wind farm is nothing more than defending one's self-interest.	3	1	5	-3
57	Although local opposition to wind projects is quite normal, the public benefit of wind energy is rarely disputed.	0	4	3	-3
59	The small amount of clean energy that you generate with windmills does not compensate for the negative impact they have on the landscape.	-4	-2	-4	2
35	Initiators of wind farm projects underestimate the value of the landscape when developing locations.	-1	2	-2	5
18	Before building windmills all over the country, energy efficiency options should be investigated more thoroughly.	-2	2	-1	6
22	National and regional governments should be able to issue directives when local authorities fail to co-operate with the construction of a wind farm.	0	2	4	-4

Table 7.3 Scores of actors on different factors^a

	Factor 1	Factor 2	Factor 3	Factor 4
Netherlands:				
Zeeuwind Cooperative	0.65	-0.02	0.32	-0.08
Researcher	0.60	0.20	0.08	-0.24
VWNH (wind power branch)	0.58	0.17	0.04	-0.20
Pawex (wind power branch)	0.56	-0.09	0.15	-0.06
ECN (research institute)	0.54	0.42	0.15	-0.16
Novem (government agency)	0.52	0.42	0.08	-0.30
England:				
Baywind Cooperative	0.59	0.17	0.44	0.03
North Rhine-Westphalia:				
BEE (renewables branch)	0.77	0.18	0.04	0.07
Nabu Deutschland (nature protection organisation)	0.69	0.04	0.23	0.19
BWE (wind power branch)	0.68	0.12	0.20	-0.31
Researcher	0.65	0.13	0.24	-0.12
MUNLV (state ministry of environment)	0.64	0.02	0.41	0.20
BMU (national ministry of environment)	0.61	0.31	0.15	0.03
DEWI (research institute)	0.57	0.55	0.18	0.00
Energieteam (private wind developer)	0.56	0.05	-0.32	-0.08
MSWKS (state ministry of economic affairs)	0.50	-0.04	0.45	0.18
Greenpeace (environmental organisation)	0.50	0.28	0.26	0.08
	Factor 1	Factor 2	Factor 3	Factor 4
Netherlands:				
Municipality	0.45	0.48	-0.18	-0.03
EZ (national economic ministry)	0.26	0.45	0.16	-0.33
England:				
DTI (national ministry of economic affairs)	0.41	0.58	0.31	-0.16
RSPB (bird protection organisation)	0.35	0.49	0.30	0.42
North Rhine-Westphalia:				
VDMA (wind turbine industry branch)	0.30	0.75	0.12	-0.00
Landesinitiative Zukunftsenergien (government agency)	0.20	0.57	0.53	-0.04
Bezirk Münsterland	0.47	0.56	0.01	-0.01
Nabu NRW (nature protection organisation)	0.28	0.49	0.31	0.21
Bürgerwindpark Baumberge (citizens wind project)	-0.05	0.41	0.13	-0.12

	Factor 1	Factor 2	Factor 3	Factor 4
Netherlands:				
Nuon (energy sector developer)	0.29	-0.09	0.64	-0.29
Greenpeace (environmental organisation)	0.50	-0.08	0.60	-0.25
FME (turbine industry branch)	0.28	0.33	0.47	-0.07
Province of North-Holland	0.21	0.19	0.45	-0.05
VROM (national ministry of environment and planning)	0.37	0.39	0.43	0.15
England:				
BWEA (wind energy branch)	0.31	0.20	0.68	-0.08
WindProspect (private wind developer)	0.10	0.13	0.67	-0.37
Npower Res (energy sector developer)	0.29	0.42	0.61	-0.21
RPA (renewables branch)	0.52	0.05	0.57	-0.18
Defra (national environmental ministry)	0.28	0.27	0.54	-0.16
English Nature (nature protection)	0.09	0.34	0.47	0.26
Greenpeace (environmental organisation)	0.47	0.21	0.47	-0.14
North Rhine-Westphalia:				
ABO Wind (private wind developer)	0.43	-0.09	0.66	-0.19
	Factor 1	Factor 2	Factor 3	Factor 4
Netherlands:				
Windhoek (local anti-wind group)	0.19	-0.03	-0.16	0.66
Wadden Vereniging (nature protection organisation)	0.36	0.27	0.01	0.43
England:				
Country Guardian (anti-wind network)	0.05	-0.08	0.00	0.68
FOL/CPRE (landscape protection)	0.34	-0.01	-0.14	0.64
CPRE (landscape protection)	0.32	0.21	-0.11	0.55
Researcher	0.40	0.26	-0.30	0.54
Cumbria County	0.25	0.40	0.30	0.41
North Rhine-Westphalia:				
BLS (anti-wind group)	0.11	0.10	-0.03	0.52
BMWA (national ministry of economic affairs)	-0.04	0.32	0.09	0.46
VDEW (conventional electricity sector branch)	-0.15	0.24	0.43	0.46

^a The bold and shaded columns represent the factors, these include the highest scores; scores that are shaded but not bold were second-highest scores of significant subjects.

	No significant loading on any factor			
	Factor 1	Factor 2	Factor 3	Factor 4
Netherlands:				
WEOM (private wind developer)	0.36	0.07	0.31	-0.41
EnergieNed (energy sector branch)	0.35	0.38	0.26	-0.29
England:				
Maiwag (local anti-wind group)	0.30	0.16	-0.11	0.32
Municipality	0.27	0.08	0.25	0.37
AEP (energy sector branch)	0.27	0.33	0.39	-0.33
ODPM (national ministry of planning)	0.32	0.32	0.30	0.29
North Rhine-Westphalia:				
Municipality	0.33	0.00	0.29	0.23

The first three factors represent different perspectives from actors that support wind power implementation (table 7.3; Annex B for an overview of all respondents). We named the first factor the *independent developers' perspective*, the second one the *turbine industry perspective*, and the third one the *unconditional support perspective*. The fourth factor, named the *wind power contested perspective* differs from the first three in that it is rather critical both of wind power development in general and of the manner in which wind projects have been proposed, planned and implemented. We first concentrate on how the three proponents' perspectives differ from each other, after which the comparison is extended to the fourth factor.

Factor 1: Independent developers' perspective

The first factor, the *independent developers' perspective*, explains 18 % of the variance. The strongest representatives of this perspective (i.e. with highest factor loadings) were the BEE (renewables branch) in NRW, the BWE (wind energy branch) and Nabu Deutschland (nature protection organisation), the German social scientist, the NRW environmental ministry and the federal environmental ministry. In the Netherlands, Zeeuwind Cooperative, the social scientist, the association of farmer turbine operators of the Province North Holland (VWNH), and the association of private wind turbine operators (Pawex) scored medium to high on this factor. None of the English respondents loaded heavily on this factor, the strongest representative being Baywind Cooperative. Overall, *the independent developer's perspective* was more apparent in NRW than in the Netherlands and least apparent in England (table 7.3).

A distinguishing statement for the *independent developers' perspective* was [15] "Power companies will always try to keep third parties from entering the wind energy market". This viewpoint is prominent among representatives from German wind project developers, the Dutch and

English cooperatives and the Dutch Pawex, a branch organisation that has had several conflicts with the power sector. These actors' experiences with the energy sector apparently led them to this view. Unlike the second *turbine industry perspective* and the third *unconditional support perspective*, the *independent developers' perspective* disagreed with the statement that argues for the importance of direct support for the turbine industry, power companies and research institutes [5]. The *turbine industry perspective* - representing actors from industry - most strongly supported this statement. In addition, the *independent developers' perspective* differed from the other two proponents' perspectives in that it did not reflect a very strong market-orientation. It scored negative on the statement that in the end, it is the market that will determine the success or failure of renewable energy [33].

Furthermore, although all three proponents' perspectives subscribed to the opinion that financial support which focuses on yield is better than support for investments in wind energy capacity [51], the *independent developers' perspective* scored highest - especially in comparison with the *turbine industry perspective*. Likewise, all three proponent-factors approved of the statement that a guaranteed minimum price for wind energy delivered to the grid is an important factor in determining successful implementation [29], but the *independent developers' perspective* was (again) most in favour. The eager support for these statements among the actors representing the first perspective reveals a preference for a feed-in tariff system. Together with the *unconditional support perspective*, the *independent developers' perspective* agrees that uncertainty about the arrangements for renewable electricity scare off potential investors [31]. Representatives of both perspectives have experienced such insecurities in varying degrees, those in the Netherlands to the greatest degree. Of the three proponents' perspectives, the *independent developers' perspective* disapproved most strongly of the opinion that [18] "Before building windmills all over the country, energy efficiency options should be investigated more thoroughly." Several respondents from the first perspective commented that it is not a question of choosing between wind power and energy efficiency, but that both should be realised.

Factor 2: Turbine industry perspective

The second factor, the *turbine industry perspective* - accounting for 9 % of the total variance - represents fewer actors in the field, and is at least quantitatively less significant. Here, the most distinctive representative was the VDMA (turbine manufacturers' branch organisation), the NRW State Initiative for Future Energies, and the UK Ministry of Trade and Industry. Representatives' loadings on this factor were not very high

(except for VDMA) and this perspective appeared again to be most prominent in the NRW case.

Statement [5] “Incentives should be directed to the turbine industry, power companies, and research institutes since these parties determine the successful market introduction of renewable energy”, was moderately supported, but very differently appreciated by the three other factors. Obviously, the turbine industry favours this view, as does the State Initiative, which is very much concerned with encouraging (the export of) North Rhine-Westphalian wind power technology, products and services.

Another distinguishing characteristic was that the *turbine industry perspective* stood alone in its disapproval of the statement [13] “If wind energy policy is formulated primarily by the Department of Trade and Industry⁷⁷, certain aspects of sustainability and town and country planning will receive insufficient attention”. Apparently, the *turbine industry perspective* did not call into question the competence of economic ministries to attend to environmental and spatial issues. However, this perspective did express its concern about developers’ capacities and willingness to deal with these issues, as it supported the statement that [35] initiators of wind farm projects tend to underestimate the value of the landscape when developing locations. In addition, unlike the *independent developers’ perspective*, the *turbine industry perspective* moderately subscribed to the statement that energy efficiency options should be investigated more thoroughly before building windmills all over the country [18].

Furthermore, while both the *independent developers’* and the *unconditional supporters’* perspectives were neutral about the merit of allowing the local community to exert its influence in every phase and on all aspects of the decision-making process [28], the *turbine industry perspective* and the *wind power contested perspective* were both equally supportive. In addition, the *turbine industry perspective* converged with the *wind power contested perspective* on the statement that [6] important stakeholders are often not properly consulted during the design phase, which goes against the opinion of especially the *unconditional support factor*. A similar statement [19] according to which the involvement of potential opponents will enhance the chances of successful implementation, although supported by all three proponents’ factors, received most support from the industry perspective. The *turbine industry perspective*

⁷⁷ In the English case, this national department is responsible for energy policy. For the Dutch and NRW cases, the names of the economic ministries of the respective cases were adopted in the translation of the statement.

strongly diverged with the *unconditional support perspective* on the statement that it is pointless to involve opponents since they won't compromise anyway [8]. Hence this perspective showed a stronger commitment to and trust in participation in local decision-making on wind power implementation than the *unconditional support factor*. Moreover, the *turbine industry perspective* was most confident about the non-controversial nature of wind power development, as it scored high on the statement that [57] "Although local opposition to wind projects is quite normal, the public benefit of wind energy is rarely disputed." While the *unconditional support perspective* also supported this statement, the *independent developers' perspective* remained neutral.

The *turbine industry factor* demonstrated a strong opinion about early involvement of the local community and the responsibility of the project developer to make sure that a variety of interests are taken into account when planning and developing projects. Unlike the representatives of the other two proponents' perspectives however, the representatives of the *turbine industry perspective* are not directly involved in wind power implementation - neither as developers, nor as local stakeholders.

Common ground between the first two perspectives

There were several opinions, on which both the *independent developers' perspective* and the *turbine industry perspective* scored high, while the *unconditional support perspective* scored low or negative (table 7.2). These included the opinion that financial participation is a good way to prevent or overcome local resistance [43], that local initiatives are crucial for successful implementation of wind energy [38], and that it is wrong to take decisions without giving neighbouring residents a decisive influence [23]. The importance of involving local stakeholders from early on, before the first project design is made public [49], also received support from both perspectives. Moreover, neither approved of the opinion that more citizen participation leads to even more opposition and even less windmills [47]. These opinions are in line with arguments brought up in interviews by both wind cooperatives (Baywind and Zeeuwind) and the pioneers in wind power development in Germany - namely, Energieteam, BWE, but also the respondent from BEE (who has developed locally owned projects in NRW). At the same time, the statement that it is good to require local authorities and regional governments to reserve space for wind turbines in their local plans [56] was also strongly supported. This measure has been applied in Germany as the *Priviligierung*, which was the result of a lobby from BWE and BEE. The respondents concerned emphasised that this measure allows

municipalities to exclude areas for wind power, hence providing clarity to both developers and residents.

Factor 3: Unconditional support for wind power

From the total variance, the third factor accounted for 12 %. This *unconditional support perspective* was most apparent in England, where Wind Prospect, Npower Renewables, and the British Wind energy Association (BWEA) provided strong support. In the Netherlands these views were also apparent, and most clearly revealed by power company Nuon as well as Greenpeace. In NRW the only strong representative was ABO Wind, a medium-sized project developer.

The *unconditional support perspective* fully and even more outspokenly agreed with the *independent developers' perspective* that “Uncertainty about the arrangements for renewable electricity scares off potential investors” [31]. At the same time, unlike the *independent developers' factor*, it displayed a strong belief in the significance of the market [33]. The *unconditional support perspective* did not provide much support to a measure like the *Privilegierung* [56]. This is because the BWEA and other English developers have little faith in the willingness and capability of local authorities to designate suitable areas for wind power development. The *unconditional support perspective* did score high on the statement that national and regional governments should be able to issue directives when local authorities fail to co-operate with the construction of a wind farm [22]. This belief in the effectiveness of hierarchical decision-making is related to the support for the opinion that slow and complex decision-making is responsible for lagging implementation [52]. Other factors were moderately negative or remained neutral on this statement. In addition, the *unconditional support perspective* was the sole to subscribe to the technocratic statement that the input from the public in a decision-making process often shows a lack of expertise [10] and that the problem with public input is that it is primarily based on emotions [32]. In line with these notions, it also awarded stronger support than did the other two proponents' factors to the statement that [44] professional know-how and scientific expertise ought to play a decisive role in decision-making on infrastructure.

While the other three perspectives (to diverging degrees) did agree that often, important parties are insufficiently consulted during the design phase of wind turbine projects [6], the *unconditional support perspective* did not. The statement that it is wrong to take decisions without giving neighbouring residents a decisive influence [23] gained support from all but the *unconditional support perspective*, which remained neutral. This perspective was furthermore the only one that scored

negatively on statement [24], which argues that initiators take too little time and effort to fit a wind farm into the existing environment. Finally, the *unconditional support perspective* stood out in its strong approval of the opinion that [11] local opposition to a wind farm is nothing more than defending one's self-interest. While the *independent developers' perspective* moderately supported this one, the *unconditional support perspective* scored high.

All these differences between the *unconditional support perspective* and the other factors reveal a rather distinct view with regard to project planning, implementation and decision-making on wind power. Unlike the other factors, it does not favour participation. The *unconditional support perspective* involves a preference for a Decide-Announce-Defend approach, in which the professionals and experts work out a project plan, while other (local) stakeholders are allowed to respond afterwards. At the early stages of project planning, there should be but little involvement of these stakeholders, because their concerns are regarded as based on emotions and as reflecting merely local self-interests (which is reminiscent of the nimby-explanation of local opposition). In addition, the planning system is regarded as a bottleneck; if municipalities are not in favour, higher levels of government should be able to issue a directive to force municipalities to grant planning permission.

The divergence of opinion between the *independent developers'* and the *unconditional support perspective* as to the desirability and necessity of participation in project planning and development are interesting, as these perspectives involve project developers, who are daily active in the practice of wind power implementation (unlike the *turbine industry factor* representatives).

Common ground between the first two and third factors

There was little common ground between the *independent developers' perspective* and the *unconditional support perspective*. Both shared concerns about investor security [31], the preference for support for yield instead of for capacity [51], and the opinion that even in a liberalised market, wind energy can only be a success if governments continue to lend support [21]. Furthermore, both perspectives shared the view that there is still a large potential for onshore implementation [42] and disagreed more strongly than the *turbine industry factor* with the opinion [59] that the small amount of clean energy that you generate with windmills does not compensate for the negative impact they have on the landscape [59]. Unlike the *turbine industry perspective*, both scored negatively on the statement that project developers often underestimate the value of the landscape when developing locations [35]. Apparently, most project

developers (representatives of the first and third factors) think that they sufficiently take account of landscape concerns, which is remarkable when considering that most opposition and conflict relates to perceived landscape impacts.

The *turbine industry perspective* and the *unconditional support perspective* did not show much agreement either. Both regarded wind power development as uncontested [57]. They also supported the statement about the decisiveness of the market for the success of wind power [33], while the *independent developers' factor* scored negatively on this one. Both revealed a stronger belief in the market than the *independent developers' perspective*.

Factor 4 Wind power contested

Factor 4, the *wind power contested* perspective, explained 9 % of all variance. This factor was most apparent in England, among Country Guardian, Friends of the Lake District, Council for the Protection of Rural England, and the English social scientist. The tradition of landscape protection interests in England is clearly reflected here. The Bundesverband Landschaftschutz in NRW and Windhoek in the Netherlands (both opposition groups against wind power) supported this factor most strongly. The Dutch organisation for the protection of the Wadden Sea Area provided moderate support as well.

Furthermore, the German economic ministry and the German branch organisation for the conventional energy sector were also moderately supportive. At first sight, this is remarkable, since one would not expect them to be concerned about either landscape or local concerns (see below). Even so, during the interviews they demonstrated strong sympathy with opponents of wind power development as well as scepticism about the benefits of wind power.

The most distinguishing statement for the *wind power contested* factor was that “before building windmills all over the country, energy efficiency options should be investigated more thoroughly” [18]. Several respondents argued that wind power had been favoured over other renewables and over other measures to counter climate change. In addition, the statement that national and regional governments should be able to issue directives when local authorities fail to co-operate with the construction of a wind farm [22] met with strong disapproval, as did the statement that when building infrastructure, one need not be so concerned about the environment at the local level because this is already taken into account at the national level [4]. In addition, strong support was awarded to the statement that local interests are not sufficiently taken into account at the national and regional level, so that it

is understandable that there is local resistance every time a wind farm is planned [46].

What furthermore contrasted with the other factors (especially the *independent developers'* and the *unconditional support perspectives*) was the conviction that project developers underestimate the value of the landscape when developing locations [35] and the opinion that the small amount of clean energy generated with wind turbines does not compensate for the negative landscape impact [59]. The statement that onshore wind energy should be left alone, because the future lies in offshore development [42], received moderately support. Not surprisingly, the *wind power contested perspective* did not agree with the statement that although local opposition to wind projects is quite normal, the public benefit of wind energy is rarely disputed [57]. On the contrary, representatives of this perspective regarded wind power as highly contested, mainly because of the visual impact of wind turbines, but also because of the perception that local decision-making on wind power implementation takes too little account of local interests. Those actively opposing wind projects did not consider themselves as merely defending their own self-interest [11], as was argued by the *unconditional support* and *independent developers'* perspectives.

The *wind power contested perspective* was very critical about how local stakeholders are involved in planning and decision-making around wind power implementation [6]. It disagreed with the other factors, especially with the *unconditional support perspective*, regarding the opinion that public consultation procedures make the decision-making process more complicated and lengthier than necessary [3]. Likewise, the *wind power contested perspective* scored negative on the statement that planning processes must be carried out rapidly in order not to scare away investors, operators and power companies [60]. It argued for early involvement with all relevant stakeholders, from the moment that the design process starts - statements [28] and [49]. During the interview, one of the respondents (CPRE) emphasised the need for careful planning that takes account of nature and landscape protection interests as well as other local interests. The *wind power contested perspective* did not agree with the statement that financial participation for nearby residents is a good way to defuse opposition [43], regarding it perhaps as a kind of bribe, or at least as no solution if it is not accompanied by early participation in project planning.

The *wind power contested perspective* was against measures like the German *Privilegierung* [56]. It also disagreed with the opinion that the problem with public input is that it is primarily based on emotions [32]. In interviews, several respondents complained about what they regarded

as the arrogant attitude of developers who refuse to take their concerns seriously.

The *wind power contested perspective* stands in contrast with the other three perspectives, most sharply with the *unconditional support perspective* and least so with the *turbine industry perspective*, since that one agreed on several statements regarding local involvement and project development.

7.3 Concluding remarks

Table 7.3 shows how the 56 actors loaded on the four factors. For some actors, other factors might have been expected, like, for instance, for VROM, the Province of North-Holland and the Naturschutzbund NRW (Nabu NRW). Furthermore, seven actors did not score significantly higher on one factor compared to the others, and therefore have not been subsumed under any of the factors. Still, when we look at the remaining actors and at how their patterns of statements have formed the four factors, a picture emerges that is not contradictory to the analysis in the preceding chapters.

The statements that discriminated strongest (tables 7.4 and 7.5) reflect those issues that are most salient in the current debates and disputes about wind power implementation.

Table 7.4 Statements with highest discrimination for factor 4

	Statement	$z_x - z_y$	Factors (x-y)
29.	A guaranteed minimum price for wind energy delivered to the grid is an important factor in successful implementation.	2.5	1-4
35.	Initiators of wind farm projects underestimate the value of the landscape when developing locations.	-2.7 -3.1	1-4 3-4
59.	The small amount of clean energy that you generate with windmills does not compensate for the negative impact they have on the landscape.	-2.9 -2.9	1-4 3-4
18.	Before building windmills all over the country, energy efficiency options should be investigated more thoroughly.	-3.4 -3.0	1-4 3-4
22.	National and regional governments should be able to issue directives when local authorities fail to co-operate with the construction of a wind farm.	2.9 3.6	2-4 3-4
57.	Although local opposition to wind projects is quite normal, the public benefit of wind energy is rarely disputed.	2.8 2.6	2-4 3-4
11.	Local opposition to a wind farm is nothing more than defending one's self-interest.	2.8	3-4

The most discriminating statements between any of the four factors all concerned the *wind power contested perspective* (table 7.4). Of these, [35] and [59] involved landscape concerns. However, it was not just concern about the impact of wind power on the landscape that distinguished the *wind power contested* view from the others. Other discriminating statements dealt with the necessity of wind power [18], the legitimisation of top-down assignments of siting turbines [22], the contested nature of wind power [57] and the understanding of local opposition as arising from self-interest [11].

Table 7.5 Statements with highest discrimination for factors 1, 2 and 3

	Statement	$z_x - z_y$	Factors (x-y)
15	Power companies will always try to keep third parties from entering the wind energy market.	1.7	1-2
5	Incentives should be directed to the turbine industry, power companies, and research institutes since these parties determine the successful market introduction of renewable energy.	-1.6	1-2
33	In the end, it is the market that will determine the success or failure of renewable energy.	-1.6 -1.6	1-2 1-3
51	Financial support geared towards wind energy yield is better than financial support for investments in wind energy capacity.	1.5	1-2
18	Before building windmills all over the country, energy efficiency options should be investigated more thoroughly.	- 1.5	1-2
6	Most of the time, important parties are insufficiently consulted during the design phase of wind turbine projects	1.8 2.3	1-3 2-3
35	Initiators of wind farm projects underestimate the value of the landscape when developing locations.	1.6	2-3
19	Involving potential opponents to a wind farm in a timely manner will increase its chances of getting built.	1.5	2-3
31	Uncertainty about the arrangements for renewable electricity scares off potential investors.	-1.9	2-3
8	Opponents of wind turbine parks are not willing to compromise. Therefore, it is pointless to involve them in the decision-making process.	-2.0	2-3

The three proponents' perspectives reveal differences as well. The differences between the *turbine industry* and the *unconditional support perspectives* are strongest, as table 7.5 shows. However, those between the *independent developers'* and the *unconditional support factors* are the most interesting, since these perspectives involve representatives of developers

involved in wind power implementation and wind power branch organisations. The most prominent differences of opinion concerned the manner in which project planning and implementation is to be conducted [6]. The *independent developers' view* is in favour of early involvement of stakeholders in project planning and participation in decision-making whereas the *unconditional support perspective* prefers consultation on ready-made plans. Furthermore, it favours financial participation and local ownership more than the *unconditional support perspective* does. The *unconditional support view* emphasises the importance of expert and professional knowledge, while dismissing the knowledge of the general public.

In relation to the analysis of the preceding chapters, it can be argued that diverging perspectives reflect different experiences and varying implementation achievements in the three cases. The *unconditional support view* involves energy sector developers and most of the English wind sector, while the *independent developers' factor* is supported by German and NRW actors as well as by private and locally based project developers in the Netherlands and England. Overall, the latter perspective is most prominent in NRW, where developers have most experience with a project development approach that favours financial participation and participation in project planning. Hence, speaking from their own experience, the independent developers argued for financial participation and early involvement of relevant stakeholders as the most suitable approach to reach wind power implementation. Wind power implementation has been most successful in NRW, where such approaches have been more apparent than in England and the Netherlands. In the Netherlands however, there was moderate support for the *independent developers' perspective*, mainly among independent developers themselves, the farmer-developers' branch and the cooperative. The *unconditional support view* (supported by English developers and the English wind power branch) prefers a hierarchical and top-down approach in project planning and development. However, in England, implementation has been least successful. People have little experience with practices of local ownership and enhanced participation in project planning, and despite implementation failures there has been no serious review of the potential merits such practices may bring. What is furthermore telling about the English case is that the two perspectives that contrast most sharply - i.e. the *unconditional support perspective* and the *wind power contested factor* - received the strongest support. This reflects the fact that controversy around wind power development is most apparent in England, and this may well be related to the favoured

approach in project development, which has little regard for other (local) interests and consequently intensifies opposition.

A question that arises is how the Q sort can be related to the stories that were constructed for each case. The factors are not equal to any of the stories, since the stories were constructed *within* each case, and not across. The stories were identified on the basis of the interviews and stakeholder documents, prior to the final Q sort analysis. Hence, the analysis focused on different data, in which there was no quantitative manner to ‘weigh’ the importance of the arguments brought forward by several respondents. The next chapter includes a comparison between the stories of the different cases, which is subsequently related to our findings regarding the Q sort.

8 Comparison on institutional capacity building

This chapter is an adapted version of an article accepted for publication in Energy Policy (Breukers and Wolsink, forthcoming)

8.1 Introduction

This chapter largely follows the structure of the case chapters. We start with a comparison of the stories and relate this to the findings of the Q sort analysis. Next, we compare the arrangements and changes in the policy domains as well as processes of policy community formation. We conclude the chapter by evaluating how our conceptual framework enabled our empirical enquiry and comparison.

8.2 Comparison of stories and relation to Q sort analysis

We first address similarities and differences between the cases concerning those aspects that figured prominently in the various stories, after which we relate these to the findings arrived at in the Q sort analysis (chapter 7).

8.2.1 Differences in stories among the cases

The stories were constructed on the basis of respondents' argumentations and stakeholder documents. The stories were divided into proponents', conditional supporters', and opponents' stories. In North Rhine-Westphalia, an additional opponent story was identified, among actors that represent the conventional energy sector. The comparison addresses the following issues:

1. The institutional framework:
 - a) Wind power policies and policy-making
 - b) Planning system, planning policies, local planning processes and procedures
2. Who should develop wind projects and how
3. Understandings of opposition

1. a) *Wind power policies and policy-making*

Proponents:

The Dutch sketched a historical trajectory characterised by policy failures

and insecurity, for which the government was heavily criticised. Most argued for a feed-in tariff system (not yet adopted at the time the interviews were taken). Against the Dutch historical picture of disappointment and resentment, NRW proponents recounted a history of strong commitment to and successful implementation of wind power. They all praised the feed-in tariff system. In the Netherlands, there was insecurity about future policies at the time of the interviews, which is likely to have strengthened the respondents' negative views. Most English proponents were future oriented and optimistic about the newly adopted Renewables Obligation. Unlike the Dutch proponents, they did not bring forward arguments in favour of a feed-in tariff system.

Conditional supporters:

The conditional supporters' stories all emphasised that wind power is not the only way to combat climate change. In all three cases, they argued that instead of targeting production capacity, policies should take on a broader, integrated approach that addresses energy efficiency and saving, other renewables and further measures to change consumption patterns and lifestyles. Dutch and English respondents added that liberalisation and the resulting emphasis on market forces and profits is not going to benefit the environment.

Opponents:

Opponents in all three cases regarded financial support as an outright waste of money. English and NRW opponents regarded supportive policies as the result of political lobbying of big companies (England) and the Greens (NRW).

1. b) Planning system, planning policies, local planning processes and procedures

Proponents:

Several Dutch and English proponents regarded the planning system a bottleneck for successful implementation. Proponents in these two cases argued that municipalities should be pressured to take a more positive stance towards wind power. They also argued for offering them better assistance and information. The Dutch argued for shortening and simplifying the permitting procedures. In NRW, proponents were satisfied with the *Privilegierung* and the planning procedures generally. With regard to local planning, each case had both respondents favouring a local planning approach that takes better account of local interests and that tries to garner support bottom-upwards, and respondents arguing for more top-down approaches.

Conditional supporters:

Conditional supporters in the three cases shared the view that wind project development not always sufficiently takes account of local,

landscape, environmental and nature protection interests. English and Dutch conditional supporters emphasised the importance of the planning system to protect rights. They were more critical of the German *Privilegierung* than the NRW conditional supporters. In addition, the English story was more comprehensive than that of the Dutch and NRW conditional supporters. It addressed not only environmental, landscape and nature protection considerations, but it also was concerned with collaborative planning, local democratic decision-making, sharing benefits, and countering the power of large companies. The English cultural historical tradition of landscape protection is firmly rooted and organisations like the Council for the Protection of Rural England (CPRE) have developed a perspective on landscape preservation and quality of place in which the local community has a central role.

Opponents:

Opponents in all three cases stressed how wind projects have spoiled cherished landscapes, and disrupted and divided local communities. Dutch and English opponents stated that local authorities hide behind national policy objectives, sometimes impede proper access to relevant information, and hence obstruct open local discussions about pros and cons. NRW opponents accused the Greens of power play and of neglecting the basic principles of democracy. The *Privilegierung* was heavily criticised. Both English and NRW opponents placed the conflict in the context of urban-rural antagonism, arguing that the proponents all live in the city, with no connection to the countryside, and impose the burden on the rural population.

2. *Arguments about who should develop wind projects and how*

Proponents:

Especially in NRW and the Netherlands, there was divergence *within* proponents' stories, which may be related to the greater diversity in types of Dutch and NRW developers compared to England. Hence, stories involved preferences in favour as well as against cooperative approaches, local ownership, financial and planning participation.

Overall, English and (to a lesser extent) Dutch proponents were more sceptical about the merits of financial and planning participation than their NRW counterparts. The dominant view among English proponents was that although local ownership and community projects are nice and may help to gain public support, they are not suitable to reach considerable installed capacity levels. Several NRW proponents argued the opposite, stating that enabling financial and planning participation is the best way to reach successful implementation. It was

especially those that had been involved in wind power project development since the beginning years who strongly argued for the need of early local involvement and local ownership, also in regard to larger and commercial projects. Diverging historical experiences between England and NRW are reflected in diverging preferences. England overall has least experience with wind power implementation, since fewer projects have been realised there than in NRW. Moreover, English project developers have more often met with local opposition than their counterparts in NRW. In addition, there is little experience with local ownership, and the very few locally owned projects in England are small cooperatives. Quite the contrary is the case in NRW, where a lot of experience has been built up, where implementation has been successful, and where local ownership has been more widespread. In fact the largest commercial wind farm in NRW is a locally owned project. Moreover, the initiator of this project as well as others active in other parts of Germany, have demonstrated that larger projects can very well be developed using an approach of local ownership.

Conditionals:

Conditional supporters in all cases argued for early involvement of nature, landscape and environmental protection organisations, as well as of other relevant stakeholders, in project planning. English conditional supporters elaborated on the need for community ownership to channel benefits to the local community instead of to the ‘big companies’. Conditional supporters in England were most outspoken in their distrust of developers’ motives, which may be related to the fact that in England, the majority of projects has been developed by utility-subsidiaries and that many of these projects have raised controversy.

Opponents:

Opponents in all three cases found that wind projects are developed at the cost of the local community. In NRW, opponents stressed that the benefits of local ownership accrue to a very small percentage of the local population. Moreover, it was argued in all cases that project developers are only driven by commercial motives, regardless of their professed concerns about the environment.

3. Understandings of opposition

Proponents:

In all three cases, proponents of wind power implementation often accused local opponents of nimby-behaviour, fear of change or downright unwillingness to cooperate. In NRW, proponents jeered at how all of a sudden everyone had become worried about ‘the landscape’. English proponents stressed that opponents represent a vocal but small

minority, supported by some influential people and the media. Some English and NRW proponents accused opponents of receiving funding from the nuclear and conventional energy sector.

Conditional supporters:

In all three cases, conditional supporters argued that concerns of opponents are lumped together and brushed aside too easily, and objected to the fact that wind energy tends to be portrayed as 'beneficial', regardless of the manner in which projects are planned or sited. In NRW, conditional supporters argued that early involvement of stakeholders is needed to prevent them from taking sides with the anti-wind groups. In NRW, local branches of nature protection organisations have in some cases tended to side with anti-wind groups, leading to debates between central and local branches.

In both NRW and England, conditional supporters were at pains to distinguish between those who have 'genuine concerns' on the one hand, and those who oppose wind projects out of parochialism and self-interest on the other, implying that some, but not all opposition is legitimate. In England, conditional supporters were not in accord with an organisation like Country Guardian, a national organisation that has vehemently protested against wind power. They criticised its aggressive strategy, for playing on peoples' emotions and creating a polarised atmosphere. Overall, in England, the debate is most adversarial, followed by the Netherlands and finally NRW. As the debate becomes more polarised, it becomes more difficult for conditional supporters to make their point without being pushed in either the pro- or anti-camp.

Opponents:

Dutch opponents stated that many dare not speak out against wind power, fearing that they will be branded anti-environmentalist, and that nature protection organisations lack the courage to take a stronger position. This latter argument was brought up in NRW and England as well. In England, opponents added that they were falsely accused of being nimbys.

Similar tensions in the three cases

When we look at contested issues and tensions among - and within - stories, it becomes clear that some of these appear in all three cases, be it in diverging degrees. A first tension concerns the manner in which landscape values are taken on board by project developers, in project planning and in policies. Both opponents and conditional supporters in each case showed apprehension about the impact of wind turbines on landscape values. Whereas this prompted opponents to argue for a stop to further wind power implementation, conditional supporters instead

argued for a careful planning approach in which no a priori priority is granted to wind power development. Many proponents in the three cases considered the landscape issue as blown out of proportion by a minority of activists, but they also differed in their acknowledgement of the issue.

A second tension was visible between, on the one hand, those who argued for financial and planning participation and, on the other hand, respondents who were more sceptical or argued against this. A third issue concerned the discretion of local authorities when considering a project proposal. Opinions varied from those arguing that central government should designate areas for wind power development, to those in favour of obliging municipalities to designate areas, to those defending the municipalities' right to decide for themselves. A fourth and final similarity among the cases involved the variety in the understanding of opposition. Some regarded opposition as reflecting self-interest and found it therefore illegitimate. Others emphasised that (part of the) opposition is based on legitimate concerns. Yet others emphasised the diversity of reasons that can lie behind opposition.

The similarities among the cases in terms of conflicting perspectives concern landscape impact and how local project planning, decision-making and project development should be conducted. The contention was about who should be involved in what manner, and which interests and claims are legitimate.

Stories and Q sorts

The stories and the Q sort analysis involve different analyses of different but related data (triangulation). The interviews and stakeholder documents were used to identify the stories. The Q sorting was done by almost the same set of respondents. Whereas the stories reflect perspectives *within* each case, the Q sort concerns perspectives *across* cases. The four factors that resulted from the Q sort analysis were the *independent developers' perspective*, the *turbine industry perspective*, the *unconditional support perspective* and the *wind power contested perspective*.

Roughly speaking, the proponents' story in the NRW case (*Matured grass roots*) matched the *independent developers'* factor quite well in terms of respondents. In other cases, respondents representing a particular story fell under various factors in the Q sort. The proponents' *Wind needs to catch up*-story in the Dutch case involved both representatives of the *independent developers perspective* and the *unconditional support perspective*. The differences within this story are highlighted by the fact that different representatives fall under either of the two perspectives. The English proponents' *Go for ambitious targets*-story involved respondents that primarily matched the *unconditional support*

factor.

Respondents of the conditional supporters' stories in each case were subsumed under different factors, most frequently under the *wind power contested* factor and least so under the *unconditional support* factor. The opponent stories' respondents fell under the *wind power contested* factor, except for Maiwag - an English local citizens' initiative against a specific, local wind project - which did not score significantly on any of the factors. Whereas the Q sort showed no discrimination between conditional supporters and opponents, the stories did so clearly, on the basis of the difference between the two that both the interviews and stakeholder documents demonstrated. The *wind power contested* factor involved both opponents as well as conditional supporters. However, regardless of this difference in categorising perspectives, it involved no contradiction, because the most distinguishing statements for the *wind power contested* factor did not reflect an outright rejection of wind power, but only revealed that wind power is contested. For both conditional supporters and opponents, wind power is indeed contested, although to different degrees.

It is clear that the stories do not fit neatly with the factors, in terms of respondents, but that there are no strong contradictions either. Moreover, contentious issues that were identified among the stories and across the cases match those identified in the Q sort quite well. Contentious issues across the cases, as demonstrated by both the comparison of the stories and the Q sort, involve landscape values, participation in project planning and local decision-making, financial participation, the role of local authorities and the understanding of motivations behind opposition. These issues are most salient in the current debates on wind power implementation in all three cases, be it to diverging degrees and in different ways.

It also became clear from the Q sort that the four perspectives were not equally represented in the three cases, and this finding was supported by the story comparison. The unconditional support view was most apparent in the English case, where implementation has been unsuccessful, while the independent developers' factor was supported most strongly in NRW, where implementation has been most successful (table 8.1). Most NRW developers, reflecting on their own experience, preferred a project development approach that favours financial participation and participation in project planning, regarding it as the most suitable approach to reach wind power implementation.

Table 8.1 Support for the factors and implementation achievements in each case

	Factor 1	Factor 2	Factor 3	Factor 4	Implementation Wind Power
England	Low	Low	Strong	Strong	Unsuccessful
Netherlands	Medium	Low	Medium	Medium	Not very successful
NRW	Strong	Strong	Low	Medium	Successful

In contrast, English respondents that represented the *unconditional support* view preferred a hierarchical approach to project planning and development, with little room for participation. The unsuccessful achievements in wind power implementation in England as yet have not prompted these respondents to consider the merits of local ownership and enhanced participation in project planning. In NRW, experience with wind power has been much more profoundly informed by successful implementation than in England.

The *wind power contested* factor was also supported most strongly in England, reflecting the fact wind power is most controversial there. This may well be related to the preference for an approach to project development that discards the legitimacy of other interests and concerns and therefore ‘invites’ opposition. The Dutch case, somewhere in the middle between England and NRW, involved both preferences for and experiences with financial participation and planning participation as well as experiences with more top-down approaches, which was reflected in the support awarded to both the independent developers’ and to the unconditional support perspective.

8.3 Comparing arrangements in the policy domains

8.3.1 Energy domain

In the seventies, the national governments in all three cases showed little interest in wind power. Nuclear power and support for fossil energy were much higher on the political agenda. Renewable energy options were at best regarded as supplementing the conventional energy supply basis, as a potential option for future diversification in energy supply.

In the late seventies and eighties, in both the Netherlands and England, wind power was taken seriously in so far as it fitted the large-scale, centralised framework of thinking about energy production and supply. In both countries, the conventional energy sector dominated national policy formation for wind power, and consequently it focused

from the start on large-scale wind power technology and application. Government and energy sector set out a path that involved targeting multi-megawatt turbines and this resulted in turbines that did not perform optimally and suffered a competitive disadvantage in comparison to foreign turbines (Interview with BWEA, 2004; Verbong *et al.*, 2001).

The German government at first also aimed at the use of very large turbines. However, when their first effort failed in 1983 (the 3 MW ‘Growian’), the remainder of the budget was directed towards a variety of smaller-scale projects. This R&D support steered firms and academic departments towards a process of experimenting with and learning about wind technology (Jacobsson and Lauber, 2006). In addition, the NRW state government adopted a comprehensive support programme from 1987 onwards. This REN-programme reached out to business, municipalities, households and individuals to initiate a process towards a more sustainable energy production and use. The programme fitted well with the needs of small turbine development and small-scale project development (Suck, 2002). National and state level support encouraged technological competition and improvement. This resulted in the production of marketable turbines (Borchers, 1993).

Around 1990, the domestic markets were small and installed capacity limited in all three cases. However, grass roots initiatives in wind power developments were supported in NRW. In contrast, Dutch policies neglected the needs of grass roots initiatives (both project developers and manufacturers) and missed out on their knowledge and experience as well. In England, there were virtually no grass roots activities based on local energy generation.

Early nineties: surpassed and unfulfilled expectations

The differences in the development of a home market based on different policy approaches are striking. England and the Netherlands both adopted an approach that stimulated adverse developments or impeded actors that were eager to invest in wind power (table 8.2).

In 1991, the Dutch government and the energy distributors agreed on the first voluntary Environmental Action Plan (MAP). It allowed the energy distributors to impose a levy on distributed electricity and to employ the resulting funds - supplemented with government funding - for renewable energy. The MAP covenants (1991 to 2001) encouraged the distributors to become involved in wind power development. Moreover, the covenants favoured them over independent initiatives. The latter had to negotiate the remuneration price with their competitors - the distributors with a regional monopoly. The distributors

had a gate-keeping role, and they could penalise wind-generated electricity fed in by independent wind projects for their 'supply uncertainty' - because of the intermittency of wind power. Halfway the nineties, a fierce struggle broke out over the remuneration prices that the distributors paid to the independent wind power generators.

The distributors' *Wind Plan* - aimed at installing 250 MW by 1995 - turned out a failure. This was partly due to the difficult cooperation between the distributors and the turbine manufacturers. Furthermore, the distributors had difficulties in making sites available, because they were inexperienced in local and decentralised project planning (Wolsink, 1996). The investment subsidies, in place until 1995, did not reward and consequently not encourage increases in yield. Rather, this support encouraged developers to buy inefficient turbines so as to receive more subsidies, and it prompted Dutch manufacturers to produce turbines that performed less well than foreign turbines. Halfway the nineties, only 257 MW had been implemented and in the latter part of the nineties, the turbine industry withered away while the turbines erected increasingly were Danish products (Kamp, 2002).

In England, early liberalisation of the energy sector (1989) was followed by a Non Fossil Fuel Obligation (NFFO), intended to support nuclear power, but also applicable to renewables. The five NFFO orders (1990 to 1998) applied a highly competitive tendering system, which awarded contracts to those that offered to develop wind projects at the lowest costs. Because of the intense competitiveness, the system favoured companies with strong financial backing - often subsidiaries of the incumbent energy sector. In addition, the competitive pressure resulted in a failure to appreciate local planning, environmental and landscape issues, causing widespread concern (McKenzieHedger, 1995). The low cost focus furthermore undermined the domestic turbine-manufacturing base and soon most turbines were coming from abroad, where better turbines could be delivered at a lower price (Mitchell, 2000). Because planning and acquiring available sites became problematic, and developers had underbid in their attempt to obtain wind contracts, many grant-funded NFFO projects were never realised. In 1998, the installed capacity in England did not even amount to 100 MW.

Table 8.2 Developments in the energy domain.

	Netherlands	England	NRW
E-sector^a	E-sector dominating policy-making and project development → change after 1996	E-sector dominating policy-making and project development	E-sector not involved in wind power and trying to impede development
Liberalisation	Stepwise, effective in 1998 → • Enhanced the position of independent developers	Early (1989) → • Providing the basic parameters for wind policy • Ineffective competitiveness	Late, 1998 → • Limited impact on wind policy
Project development	Dominance of e-sector • After 1998 more independent developers/owners (e.g. farmers)	Dominance of e-sector • Emerging independent companies • Very few locally based projects.	Grass roots citizens' projects • Course of 90s decrease in local ownership and increase in companies, investor funds
Turbine industry	Failed • No home market • Perverse incentives	Failed • No home market	Successful • Strong home market • Export product
Financial support	Volatile • Favouring e-sector • Impeding diversity (till 1996) • Focus on yield only recently	Competitive • Stable since 1991 • Favouring e-sector • Focus on cost-effectiveness • Impeding diversity	Stable • Focused on yield • Encouraging diversity

^a E-sector: conventional energy sector or subsidiaries of conventional energy companies

In NRW, implementation started to take off in 1989 when the Federal 100/250MW Wind Programme was adopted. It provided a fixed payment per kWh of renewable electricity, as well as investment support for private generators like farmers. This support was aimed at a diversity of investors, projects and turbine manufacturers. The 1991 Electricity Feed-in Act guaranteed renewable generators access to the grid and a

proper remuneration price. For the conventional energy sector, the feed-in law provided no extra support. For private, independent developers, the opposite was the case: high and predictable yields reduced investment risks. Farmers, individuals, and business invested in wind power and private capital was mobilised on a large-scale (Bergek and Jacobsson, 2003). Installed capacity increased to 1,100 MW for the whole of Germany, and 110 MW in NRW by 1995. The rapid growth of installed capacity triggered the demand for turbines. A firm base was created for both implementation of wind power and a flourishing home market for the new sector of turbine manufacturers. R&D support, as well as NRW state support, continued throughout these years and the federal governments banking institutes provided soft loans to project developers.

Stability and change in policies

Compared to NRW and England, the Dutch support system for wind power has been highly volatile. The many policy interventions were often efforts to redress deficient policies or attempts to bring policy into line with the demands of liberalisation. The resulting insecurity for investors and project developers hampered implementation (table 8.2). Although the English system showed more stability, in its competitiveness it focused on investment power, not on increasing yield.

In NRW, the support system combined stability with a focus on yield. The fundamentals of the feed-in tariff system have remained intact until the present day. NRW's government support provided backing in times of insecurity about federal policies. At the federal level, political support had to be secured over and again. The energy sector and the economic ministry frequently attacked the feed-in system, politically and in court and this resulted in temporary insecurity and stagnation in the turbine market in the period 1996-1997. Parliamentary groups more than once took the initiative to draft laws, to force the economic ministry to continue the feed-in support for wind power (Bechberger, 2001; Lauber and Mez, 2004). In 2001, NRW was leading the inland German states, with an installed capacity of 1,010 MW. Although NRW no longer has any turbine manufacturers, there still are a large number of companies that devise technology, components and offer services. The industrial-economic impact of wind power development has been quite significant for NRW (Allnoch *et al*, 2002). In the latter part of the nineties, wind project development professionalised and was increasingly carried out by 'outsider' companies, with investments from non-locally based actors. In 2000, the Renewable Energy Sources Act (EEG) replaced the old Electricity Feed Act. A review of the EEG triggered debate between

proponents and opponents of the feed-in tariff system. The resulting delay affecting the renewed EEG (adopted in August 2004) caused insecurity among investors and negatively affected the wind sector in NRW (Allnoch and Schlusemann, 2004).

Anticipating energy market liberalisation, the Dutch government abolished investment subsidies. A fiscal support system replaced the direct subsidies. In addition, renewable electricity demand was stimulated from 1996 onwards via the REB system, an ecotax exemption for renewables and optional use of ecotax revenues as a production subsidy. The final MAP introduced a Green Label system, which was replaced by a green certificate system in 2001. These measures, combined with the end of the regional monopolies in 1998, decreased the dependence of independent wind developers on the energy distributors. Finally, they were entitled to the same support as the distributors. Direct influence of the energy sector on renewable energy policy dwindled. Meanwhile, tax revenues flowed out of the country because the REB meant the distributors could import renewable energy instead of developing projects themselves (Reijnders, 2002). Hence, the expected increase in installed capacity failed to materialise.

While imports increased, domestic installed capacity lagged behind and only 480 MW was installed in 2001. This was a meagre result considering the official target of 1,000 MW for 2000 (Van Kaam, 2001). With a view to replacing the increasingly controversial REB system, a new policy was adopted, consisting of a feed-in tariff component for domestic producers (MEP⁷⁸), combined with a lowered ecotax exemption (EZ 2002). However, the feed-in payments were limited to full-load hours for a maximum of ten years. This full-load hour systematic provided an incentive to use less efficient wind turbines and receive support for the full ten years, or to apply anew for the MEP, for a renovated or new turbine - before the end of the technical lifecycle of the first turbine. The basic goal underlying the introduction of feed-in tariffs, to reward yield, was therefore not fully attained. Nevertheless, the incentives and the longer-term security provided by the MEP did encourage local ownership. Whereas previous policies mainly provided incentives for the energy sector, and resulted in disappointing implementation rates, an improved level playing field had now been created. The rise in local ownership, particularly with farmers, resulted in a recent sharp increase in installed capacity to 1,000 MW in 2004. Farmer projects have exceeded the achievements of the distributors in terms of installed capacity levels (Agterbosch *et al*, 2004; WSH, 2005).

⁷⁸ Environmental Quality of Electricity Production

In England, New Labour (1998) presented its cost-effective climate change strategy. In 2002, the Renewables Obligation (RO) was introduced. In addition, a Climate Change Levy-exemption was adopted for suppliers purchasing renewable energy. The RO requires suppliers to supply a specified and increasing portion of their electricity from renewables. Wind project owners would negotiate a contract with a supplier on the remuneration, which means that they participate in the market, in line with the neo-liberal paradigm. Overall, the price paid for electricity from wind power was higher than it had been in the later NFFO rounds, hence providing a better incentive to wind project developers. Yet although the RO system may be stable, various studies argue against its cost-effectiveness (Mitchell *et al*, 2006; Toke, 2005b). Furthermore, the influence of the large energy suppliers on market developments is significant. In addition, the utility-subsidiaries developing wind projects have easier access to money and contracts from the mother-company. This places them in an advantageous position vis-à-vis the independent generators. Compared to both the Netherlands and NRW, it is difficult for smaller companies to obtain finance and loans in England. Nevertheless, several independent medium-sized companies are doing quite well. The current undersupply of renewable energy has improved the opportunities for independent projects and the very few community projects (Toke, 2005b). The RO led to increased activity and, in 2004 an installed capacity level of around 184 MW was reached.

8.3.2 Planning domain

General features of planning systems

In none of the cases did formal planning institutions foster participative approaches. Moreover, local authorities' discretion was reduced in various ways, with reference to the overall common good, be it economic development or global environmental concerns (table 8.3).

In the eighties, changes in the Dutch Spatial Planning Act provided instruments to higher-level authorities to overrule local decision-making in cases of opposition to infrastructure or other facilities (e.g. the Nimby Bill). In England, land-use planning has been regarded as a barrier to development and economic growth since the seventies. After the Conservatives had again taken office in 1979, local freedoms to raise taxes and provide grants were curtailed and planners were urged to focus on land-use matters only. The establishment of centrally funded non-elected agencies further undermined the position of

local authorities (EU, 2000; Vigar *et al.*, 2000). In Germany, the constitutionally granted right of local self-government has been losing significance due to increased national and state regulation. Nevertheless, compared to England and the Netherlands, German local governments have more resources as well as the authority to tax and enact local laws.

Unlike England, Germany and the Netherlands have decentralised planning systems. Local development plans are the only planning instruments that are legally binding for public and private actors. This means that a wind project proposal in principle has to be in accordance with the local development plan. In England, local authorities grant or refuse planning permission after assessing the compatibility of the project with the (non-binding) local development plan as well as other material considerations (Booth, 1999; Doyle, 2001).

Wind power implementation and planning experiences

In NRW, wind power policies - not planning institutions - supported a practice of locally based project planning that was closer to being participative than project planning in England and the Netherlands. In the Netherlands and England, local planning and getting sites available for wind projects was problematic from early on. Inclusive and participatory planning were impeded, while the system did not encourage local authorities to undertake any pro-active activities either (table 8.3)

Table 8.3 Developments in the planning domain

	The Netherlands	England	NRW
General changes	Decentralised • Centralising tendency	Decentralised • Centralising tendency	Decentralised • Centralising tendency
Local planning	Pro-active local decisions needed, but this condition is often lacking	Local authority weighs material considerations; no pro-active stance	Local authority obliged to take pro-active decision
Wind power planning policies	Administrative covenants • Regional focus	Planning Policy Guidance • National focus	Privileging wind turbines • Local focus
Project planning approach	Large-scale • Recent increase in locally based projects	Top-down • Not locally based, with few exceptions	Diverse • From grass roots towards less locally based projects

The Dutch distributors - main developers after 1989 - triggered resistance due to their lack of concern for local interests and local involvement (Westra *et al*, 1990; Wolsink, 1996). Cooperatives *did* take up locally inclusive project planning while other independent developers varied in their approach. However, local ownership and inclusive project planning did not get institutionalised, because most developers adopted a Decide-Announce-Defend (DAD) approach. Moreover, planning policies did not facilitate participative planning beyond formal consultation either. Both national policy and the approach often adopted in project development failed to pay sufficient attention to relevant stakeholders like municipalities, environmental organisations, interest groups and local residents (Hofman and Marquart, 2001; Verbong *et al*, 2001; Wolsink, 1996).

The aim of an administrative covenant (1991) between the government and the provinces was to improve siting. This aim was never reached, since neither municipalities nor other stakeholders were involved. Regional plans to site 864 MW were largely not translated into municipal plans (Van Kaam, 2001). Increasingly, the economic ministry urged the designation of sites by provinces or central government (EZ, 1997; 1999). However, as this practice runs counter to the Dutch tradition of covenants and consensus-seeking, the 1991 covenant was eventually renewed in 2001. The provinces were now granted a more important 'director's' role and they have performed differently, since they adopted different approaches and varied in their enthusiasm (Van Duyn, 2005).

In Dutch planning, the local development plan must be adapted - or a procedure must be taken up to circumvent this - in order to make a wind project possible. Hence, a pro-active decision of the municipality is needed for permitting procedures to start. Although the permitting procedures are complex and regarded a bottleneck for implementation by the wind sector, project plans mostly fail in the informal planning process, prior to the actual permitting procedure (Agterbosch, 2004; Koeslag, 2002; Interview with Wadden Association, 2002). Compared to distributors, the farmers in the late nineties were better able to overcome siting problems since they were at an advantage when dealing with these informal processes: they owned the land and were better acquainted with local social networks which facilitated the garnering of local social and political support. Implementation by these actors accelerated after 2001, especially in provinces that actively supported wind power (TNO, 2005; Van Duyn, 2005).

In England, the competitive bidding in the nineties urged project developers to realise projects at the lowest costs, at the expense of an

inclusive local project planning approach. After the first NFFO projects had been realised in areas where previously industrial development had been avoided - for landscape reasons - local support waned. National planning policy guidance stated a presumption in favour of renewable energy, without elaborating on how to deal with local conflicting interests (McKenzie Hedger, 1995). During the nineties, some independent developers involved local stakeholders in the design of their wind schemes. Subsidiaries of energy companies increasingly offered community funds to gain support locally. However, the local councillors' hesitancy in deciding on planning applications has not lessened, despite the recent attention for local planning issues on the part of the wind developers and policy makers. The lack of local involvement and local benefits has undermined local commitment and support.

English local authorities must have regard to the local development plan and various material considerations, relating to e.g. environment, nature protection, or renewable energy. The contradiction between energy policy and spatial planning has not been resolved. Often, planning permission is refused with reference to the landscape impact of wind turbines, especially if established nature protection organisations are not in favour of the project. In case of refusal, a developer can appeal, which means that a higher-level planning inspectorate will decide. Since 1999, some 30 % of the applications have been appealed in England, quite often successfully (BWEA, 2004b; Toke, 2005a).

In NRW, a practice of locally based project planning was the result of wind power policies, not of planning institutions. Wind projects represented concrete local political, economic and environmental goals for the local stakeholders involved in these projects. This forestalled early opposition against wind projects. However, in the course of the nineties, with the decrease of locally owned citizens' projects, the approach to project development tended towards less local involvement in project planning.

In response to pressure from the wind sector, wind power became privileged in Federal Construction Law in 1997, and planning for wind power has since become mandatory. This means that if a municipality does not designate areas for wind power in the local development plan, developers are, in principle, free to realise a project outside the built-up area - as long as it meets with the criteria needed to acquire a building permit. As such, the right of local self-government is curtailed by this instruction that prioritises the common goal of wind power development. This *Privilegierung* facilitated and accelerated implementation achievements. However, it also resulted in resistance from local municipalities, local nature protection and citizens' groups.

Resistance thus became more widespread and significant in NRW, if at a later stage than in England and the Netherlands.

8.3.3 Environmental policy domain

In all three cases, responsibility for wind power policy was vested with the economic ministries who were responsible for energy policy at large, although in Germany the competence for renewables moved to the environmental ministry in 2002. The effect of national environmental policies on wind power implementation was mostly indirect, but some general observations will demonstrate the extent to which environmental concern became institutionalised in policy and politics, and consequently affected the commitment to renewable energy. Dutch and German governments adopted environmental policies at an early stage in response to increasing concerns (table 8.4). In the UK, the tendency to prioritise economic growth over environmental concerns had been stronger.

Table 8.4 Developments in the environmental policy domain

	Netherlands	England	NRW
Environmental grass roots	Grass roots: <ul style="list-style-type: none"> • Environmentally-inspired local initiatives • Very little leverage 	No local energy activism but grass roots landscape and nature protection → inspiring opposition against wind	Grass roots: <ul style="list-style-type: none"> • Environmentally-inspired local initiatives • Increasing leverage • Matched with policy priorities and strategy
Environmental concern	Institutionalised early	Late uptake of environmental concern	Earliest institutionalisation
Uptake of environmental concerns in other domains	Progressive environmental policy negatively affected wind power <ul style="list-style-type: none"> • Little policy integration 	Reactive environmental policy <ul style="list-style-type: none"> • After 1998: efforts at integrated climate change strategy 	Ecological modernisation approach <ul style="list-style-type: none"> • Policy integration, particularly NRW

In the Netherlands, the 1989 National Environmental Policy Plan (NMP) gave environmental concerns more prominence and introduced the new strategy of covenants with target groups, such as the MAPs. However, this part of progressive environmental policy - widely regarded

as a successful example of ecological modernisation - at the time merely benefited the distributors and undermined locally based, environmentally inspired initiatives. Environmental concerns have only to a certain extent become institutionalised in Dutch policy making, as witnessed by the conflicts around large infrastructure projects and the calls for a better representation of environmental concern in policy making. An integrated policy approach for wind power, in which various diverging sectoral interest cooperate and coordinate efforts overall has remained weak (TNO, 2005).

In England, environmental policy has been rather reactive, and has encompassed general framework guidelines, with a preference for voluntary agreements rather than regulation (Jordan *et al*, 2003). With the advent of New Labour, in 1998, renewable energy policy to a greater extent became part of the larger and international commitments to sustainable development and countering climate change, accompanied by efforts to arrive at a less sector-oriented and more integrated strategy. Land-use planning, traditionally concerned with landscape and countryside protection, was increasingly expected to address the global environmental issues as well.

The approach of both the federal and the NRW government clearly reflected the specific focus of ecological modernisation policies. It aimed to improve ecological and economic efficiency within the framework of current economic and market dynamics (Weidner, 2005). From the eighties onwards, the German corporatist system opened up to environmental organisations. The early establishment and growing influence of the Green party helped this institutionalisation of environmental concern (Weale *et al*, 2003). This has been of major significance for the acceptance of wind power in society and in politics. The support for wind power fitted in well with the ecological modernisation drive, as both economic and ecological aims were pursued. Compared to England and the Netherlands, environmental awareness became more firmly rooted at an earlier stage in society and politics. The anti-nuclear and environmental movement transformed its criticism into a search for alternatives like wind power. The Dutch anti-nuclear and environmental movement also produced the phenomenon of grass roots energy activism, although it was less widespread than in NRW and lacked sufficient political clout to bring about a strong political commitment to wind power implementation. In England, there was virtually no such grass roots wind energy basis. Instead, there was a strong grass roots tradition of landscape and nature protection, which inspired opposition to wind projects.

8.3.4 Policy communities and mobilisation of support

Grass roots

In NRW, cooperation between a diversity of actors at several levels triggered learning and the mobilisation of support. Support from the NRW state government helped to institutionalise capacities for implementing wind power. In the Netherlands, cooperation among actors involved in wind power development was problematic, and a fragmented policy community around wind power impeded learning (technological learning, policy learning, learning about how to implement wind power with due regard for other interests). In England, cooperation was limited to a policy community consisting of the energy sector and wind project developers, with little connection to actors at the grass roots level (table 8.5).

Table 8.5 Mobilisation of support

	Netherlands	England	NRW
Early formation network	Separate tracks: <ul style="list-style-type: none"> • Established energy sector • Marginal grass roots 	Wind pioneers link up with established energy sector	Bottom-up formation based anti-nuclear and environmental movement
Consolidation	Fragmented	Late consolidation	Early consolidation on various levels
Local grass roots	Pro-wind: weak Anti-wind: increasing	Pro-wind: very weak Anti-wind: strong, landscape values	Pro-wind: strong Anti-wind: emerging
Government commitment	<ul style="list-style-type: none"> • Half-hearted commitment • Unresponsive to wind sector 	<ul style="list-style-type: none"> • Ambiguous commitment • After 1998 increased responsiveness to wind sector 	<ul style="list-style-type: none"> • Federal and state policy: committed to ecological modernisation • Responsive to wind sector
Mobilisation of support	Limited on all levels	Limited on all levels, but nationally improved	Successful on all levels, but locally decreasing

The Dutch grass roots organisations in the seventies did not become the forerunners of a wind energy network in the Netherlands. Instead of

joining forces, the economic ministry created its own network around the established energy sector and related agencies and research institutes. Policy choices were scarcely based on information from actors from outside this network. Knowledge from local initiatives, self-builders, planners, environmental and nature protection organisations, was neglected from the beginning. The impact of wind cooperatives, which represented the grass roots approach, remained limited. Overall, little support was mobilised for wind power implementation at local level. Independent developers and developers from the energy sector were often at odds. Moreover, relations in the eighties were characterised by a lack of trust between the energy sector, the turbine manufacturers - and among manufacturers - and research institutes (Kamp *et al*, 2004; Verbong, 2001).

In England, early pioneers were people from technical universities, engineering and construction companies. They established the British Wind Energy Association (BWEA) in 1979 and tried to gain support by calling on players from the energy sector. Although the pioneers had to compete with the pro-nuclear and conventional energy interests represented by their fellow-members of the BWEA, no adversarial relations developed. The early wind power policy community was weak, but not fragmented like in the Netherlands where no single representative organisation for the wind energy sector existed. Early policy choices eventually resulted in the demise of the domestic turbine industry, as had likewise happened in the Netherlands. There were hardly any locally based projects and early project development created resistance. Little support was mobilised at the local level. Although some independent companies tried to involve the local community in the designing phase, this never resulted in co-ownership. Support for wind power implementation was mobilised by the BWEA at the level of national policy formation and through public campaigns in cooperation with Greenpeace and WWF.

In several German states, including NRW, the seventies' anti-nuclear and environmental movement formed the basis of the wind policy community. The German Wind Energy Association (BWE) was established in 1985. Whereas the BWEA in England linked up with the energy sector, the BWE did not. Moreover, the BWE had a decentralised structure from the very beginning and found supporters in politics at all levels of government. The feed-in tariff system was introduced after a successful joint lobby with hydropower and other renewables interests. From early on, technical wind power research institutes brought together the manufacturers, developers and government. Support was mobilised locally through locally based projects and co-ownership. As the sector

grew, economic interest representation from industry branches and labour unions added strength to the national lobbies. The wind power policy community was successful because it managed to mobilise support for wind energy at various levels through establishing links with a variety of interests.

Involvement and ownership

The Dutch wind power cooperatives have over time consolidated their position. In addition, over fifty independent companies are nowadays involved in wind power developments, and some of these have a background in the environmental movement. In the late nineties, farmers set up their own associations and their success relates to their capacity to bargain strategically with the energy companies, municipalities and other stakeholders (Agterbosch *et al*, 2004; Interview with VWNH, 2003). As the various different organisations all represent partial interests, a recent effort was made to bring them together, which resulted in the establishment of the Dutch wind energy association (NWEA). The Dutch government never really prioritised wind energy in policies and the exclusive policy approach contributed little to the formation of a unified policy community. Since 2002, a new approach is being advocated by the economic ministry, which involves more attention for stakeholder involvement in policy formation (EZ, 2002).

In England, the main wind companies are subsidiaries of the power sector. Independent companies have their roots in construction and engineering companies. There are very few cooperatives or locally based projects. Although locally inclusive project planning is advocated by BWEA and the national government, it is optional as far as project developers are concerned. In the course of the nineties, the BWEA has grown into an influential branch, predominantly representing the established players although it also linked up with the environmental movement. Since the early nineties, forms of stakeholder consultation for wind power policy have been in place, a difference with the situation in the Netherlands. With New Labour, efforts at more 'joined up' thinking and integrated climate policy were undertaken.

In NRW, citizens' projects and later investor funds offered citizens opportunities to buy shares in wind farms. Many citizens, whether local residents or from elsewhere, became involved in wind projects and this has enhanced social acceptance. Although developers from the early years still advocate an inclusive planning approach, newer entrants do not necessarily use this strategy and the planning system is not encouraging them to do so either (Interviews ABO Wind, 2005; Energieteam, 2004). Hence, the connection to the local level of

implementation appears to have weakened from the late nineties onwards. Various NRW state ministries have shown overall support for wind power and have coordinated their efforts. At federal level, interdepartmental disagreements between the environmental and the economic ministry mirror the conflicting relations between the renewables sector and the conventional energy sector. In 2002, the competence for renewables policy moved from the latter to the environmental ministry, which helped to safeguard support for wind, but did little to improve relations.

Opposition, conditional and unconditional support

All three cases show increasing local opposition to wind power schemes, but in NRW local opposition became significant much later, after the privileging of wind power in 1997 and especially after 2000, when the adoption of the EEG resulted in accelerated implementation. In England, local opponents were supported by a national organisation that has opposed wind power since 1992, the Country Guardian. In the Netherlands, a national network opposed to wind power was established in 2004.

Generally, local opposition groups have no connection with nature protection organisations or their branches. Although most nature, environmental and landscape protection organisations support wind power conditionally, some have adopted a more reserved stance. In England, where this tendency is strongest, the landscape and nature protection groups represent an established grass roots tradition. More so than their foreign counterparts, they emphasise the local community's right to be involved and the importance of collaborative planning. Their local branches increasingly oppose wind projects. In NRW, local branches are also increasingly tending to oppose wind projects, contrary to the wishes of the national branches. However, the German organisations historically - in fighting nuclear power and coal - are more strongly connected to the cause of renewable energy than those in England. National environmental organisations like Greenpeace, Friends of the Earth, and World Nature Fund unconditionally support wind power and have become more actively involved in promoting wind energy.

8.4 Conceptual framework and empirical inquiry

Before we move on to (in the next chapter) conclusions on institutional capacity building in relation to the implementation achievements in the three cases, we will briefly evaluate how our conceptual framework has enabled our empirical inquiry.

Our conceptual framework for studying policy processes allowed us to address the interdependent institutional variables affecting multiple levels, as well as the dynamic relation between institutions and actors. It enabled us to relate policy- and decision-making at national and state levels to processes of project planning, local decision-making and project implementation. We have inquired into each case in a systematic manner, addressing the following elements:

- *Policy choices within their specific historical-institutional context.*
- *Institutional arrangements and changes in the energy, planning, and environmental policy domains, and relating these to processes at the level of implementation: siting processes, investment decisions, and social acceptance.*
- *The actions taken by actors, e.g. when attempting to implement wind power, mobilise support for or against wind power, or generate attention for impacts of wind power developments.*
- *Perspectives of key stakeholders on wind power implementation (stories and Q sort)*
- *The evolving of policy communities through interaction and cooperation*

By analysing how institutional arrangements, policy processes and actors' performances have affected conditions for social acceptance and implementation, we made an attempt at a better understanding of the *socio-political potential* to account for diverging outcomes. The systematic approach enabled us to make a comparison and draw relevant conclusions.

The concept of institutional capacity building was helpful to focus attention on cooperation and conflict, and on the involvement of actors and their knowledge resources in processes at different levels. It also helped clarify the extent to which actors have come together to pool resources in order to deal with challenges and barriers, and the extent to which national government influenced the formation and configuration of a policy community around wind power. All these processes of mobilising capacity can now be qualified in terms of institutional capacity building. The next chapter starts with this final part of the comparison: the extent to which wind power implementation has become embedded

within the patterns and routines of society, politics and the economy. In addition, we discuss how and to what extent the conclusions can be generalised beyond the level of our cases. We do not aim at an instrumental prescription of success-and failure factors that can be applied in different contexts to trigger implementation and decrease opposition. Rather, we aim to discuss the wider relevance of the variables that we found to be influential and significant, in order to contribute to a better understanding of processes of institutionalising renewable energy sources.

9 *Institutionalising capacities for wind power implementation in changing contexts*

9.1 Introduction

Wind power, together with other renewables, offers the possibility to address environmental problems that are associated with non-renewable energy generation, supply and use. Although wind power still constitutes only a small percentage of overall electricity consumption, its contribution has seen a steady growth over the past decades. The costs of wind power generation have decreased significantly and several countries have been successful in implementing wind power and developing a turbine manufacturing industry. However, the divergence in implementation achievements across countries and regions in Europe is remarkable and can in many cases not be explained by sole reference to technological, economic or climatological conditions. Our comparison between the Netherlands, England and North Rhine-Westphalia aimed at a better understanding of the diverging implementation achievements of these three geographical units, by addressing the socio-political and institutional conditions and relating these to the manner in which place-making decisions have occurred. For each case we inquired how wind power has become embedded within existing and changing practices, rules and routines of society - at the national level of policy-making as well as the local level of land-use planning and decision-making and implementation. We related broader institutional arrangements to conditions that affect local investment decisions, siting processes and social acceptance. The main research question addressed in the geographical comparison was how to account for the diverging outcomes in wind power implementation in terms of differences in institutional capacity building.

In the part that follows we discuss how differences and similarities in institutionalising capacities for wind power implementation relate to the diverging achievements in the three cases. In addition, we account for case-specific (non-)institutional influences that have affected the diverging trajectories. Apart from drawing conclusions with regard to the cases, we also examine to what extent findings and conclusions would be of relevance when considering other cases.

9.2 Conclusions on institutional capacity building

Financial incentives: mobilisation of capital and support

Policies providing financial incentives have differed according to the type of projects and developers they have facilitated, and the effects on support mobilisation at the local level of implementation have likewise been different. The feed-in system in NRW, in combination with other support programmes, has been very effective in that from the outset it enabled a diversity of actors to become involved in the development of projects. Financial incentives neither discriminated against smaller and independent initiatives, nor against developers that lacked large financial resources. The feed-in tariff system promoted investments from private actors. Moreover, it kept the established energy companies from dominating the wind power market. These companies still had a monopoly over the grid, but the feed-in tariff system obliged them to provide access to independent generators. Whereas policies in NRW 'invited' citizens to invest in wind power, early wind power development in England and the Netherlands was predominantly a matter for energy companies and a few independent developers. In both the Dutch and the English cases, policies providing financial incentives and the approach of energy sector-developers negatively influenced local conditions for project planning. The competitive tendering system in England resulted in a project development approach with little regard for local (landscape) concerns. In the Netherlands, policies favouring the energy sector impeded private and cooperative developers. In both England and the Netherlands, developers faced rising local opposition and siting became difficult. This hampered implementation as well as the development of the wind turbine manufacturing industry. Already in the early nineties, Dutch and English local residents felt that it was mainly the 'big companies' that were making a profit. In contrast, in NRW many local residents were themselves involved in developing wind projects. Because the early wind projects in NRW were largely locally owned, early local resistance was forestalled and capacity for mobilisation could develop.

The German feed-in tariff system has been more conducive to local ownership than either the English tendering and quota systems or the combinations of measures that have been in place in the Netherlands. Moreover, local ownership has positively affected institutional capacity building and implementation, in the early years in NRW, and more recently in the Netherlands. The recent adoption of a

feed-in tariff policy in the Netherlands, in which independent project developers are no longer at a disadvantage, reinforces these conclusions, since implementation through local ownership has since accelerated. In England, the quota obligation system of 2002 has not yet resulted in an upsurge in wind power implementation comparable to that in the Netherlands.

An important conclusion with regard to institutionalising capacities for wind power implementation is that the choice of financial support systems is not only significant for decisions about investments. Its significance extends to the impact on local involvement (in project planning and development), local acceptance and the inclusion of local environmental concerns, in particular landscape characteristics. This relation between financial support system and local participation was also revealed in the Q sort, which showed that proponents of a feed-in tariff system were more favourable to planning- and financial participation than proponents of a quota obligation system.

Dominance of the energy sector

In the Netherlands, the strong influence of the energy sector on policy-making for wind power resulted in policies that served the interests of the energy sector better than the needs of wind power development. In both the Netherlands and England, the dominance of the conventional energy sector has not had a positive effect on mobilising support and building capacities for solving conflicts at the level of implementation. The case histories show that it is by no means self-evident that energy companies are best equipped to successfully develop wind projects. It can even be argued that the successful implementation of wind power in NRW relates to the fact that the energy companies were kept at bay.

Mobilisation capacity: cooperation and conflict

The three cases differ in the extent to which wind power has become embedded in society and politics, and as an economic sector in its own right. At first sight, the NRW case confirms the positive relationship between institutional capacity building and successful wind power implementation. Developments started locally and support was mobilised bottom-up. Favourable conditions for local project planning were created through locally based projects and local ownership, which precluded early opposition. A heterogeneous but tight-knit policy community evolved and federal and state level governments responded to demands from this network. Institutional capacity building was especially important in the early nineties when a new industry was emerging, which further broadened the basis for support. Wind power

became embedded as an environmentally preferable energy source, as a new economic sector, and as a socially acceptable alternative to conventional energy generation. The early institutionalisation of environmental concern in society helped the mobilisation of support for wind power. Furthermore, the adoption of the ecological modernisation policy approach was crucial for the provision of political legitimacy to a development that was rather costly in the beginning.

Early institutional capacity building in NRW was not the outcome of a purposive democratic strategy aiming at *strong* ecological modernisation. Both NRW and federal policies were predominantly informed by a rather technocratic and economic rationale. However, in practice, institutional developments at the grass roots level did result in a strategy that can be characterised as strong ecological modernisation. The Q sort analysis supports this, as it showed little support for technocratic implementation views among respondents in NRW. The perspective of several stakeholders with experience in actual implementation in NRW, involved an emphasis on the importance of institutionalising capacities for wind power implementation at the level of implementation, to attain positive decisions. In NRW, the capacities built in the early years, involving cooperation, participation and building trust at several levels, positively affected implementation achievements. Ironically, these capacities later on suffered from the very success of the market developments: professionalisation led to a larger distance and decreased cooperation between developers and the local community. Locally based project planning has consequently become less self-evident. Although the *Privilegierung* strengthened developers in their position vis-à-vis municipalities and potential local opponents, it did not contribute to joint problem solving. It has to be said though, that opposition only became a significant factor at a moment when an impressive level of installed capacity had already been achieved.

In England and the Netherlands, the early policy choice to focus on the energy sector and on large-scale applications resulted in less successful trajectories. In both cases, limited institutional capacity building took place in the early years, which delayed implementation.

In the Netherlands, political institutionalisation of environmental considerations appeared later and was weaker than in Germany, where actors from the environmental and anti-nuclear movement gained a strong foothold in politics already in the eighties. As for wind power, the Dutch environmentally inspired grass roots initiatives in wind power development lacked sufficient political leverage to press for other policies in the seventies and eighties.

Although in the early nineties, the Dutch neo-corporatist policy style allowed a partial opening up to environmental concerns, the emphasis was on cooperation with economic sectors - target groups, including the energy sector. Throughout the nineties, the Dutch wind power policy community was fragmented and unsuccessful in mobilising support at local or national level. The main policy actor (the economic ministry) contributed to this, through its exclusive policy approach and the discriminatory policies that favoured the energy sector. This in effect reinforced the discord and divergence within the policy community. Advocating a top-down approach in project planning discouraged the uptake of a more collaborative approach in project planning, which undermined local support and implementation. A fragmented policy community - also due to conflicts among actors involved in wind power development - and a government approach that did little to improve this situation, negatively affected the building of capacities for conflict resolution, cooperation and the development of mutual trust. Only recently, a branch organisation that represents the entire wind power sector has been established. Yet although weak institutional capacity building delayed implementation in the early years, it did not completely prevent developments at a later stage.

In England, the environmental movement was less successful than in both NRW and the Netherlands in attaining political and economic mobilisation, since it had very limited access to the political arena. Moreover, the neo-liberal ideology was rather hostile towards environmental concerns. Anti-nuclear and environmental activism did not translate into local energy activism and there was no grass roots basis for wind energy development. As a result, pioneers in wind power (technicians and engineers) linked up with government and the electricity sector. Although the wind energy policy community has not been fragmented, it has been dominated by large players from the energy sector. Efforts to mobilise support for wind power development have remained limited to lobbies directed at the national level. Because this policy community historically has lacked a connection to the level of implementation and overall has had little regard for local concerns, few capacities have been developed to solve the conflicts at the level of implementation. This has severely impeded implementation achievements. The grass roots English landscape protection tradition moreover has continually inspired and strengthened opposition to wind projects. Overall, the wind power policy community has been satisfied with the Renewable Obligation (RO) (in place since 2002), which is expected to trigger implementation in the near future. However, at the level of implementation, opposition has not diminished regardless of the

increased attention for planning issues. In practice, attention from the side of developers for local environmental, landscape protection and other concerns has often been more about ‘winning hearts and minds’ than about creating a dialogue about the feasibility and acceptability of wind power in a particular locale.

In line with Dryzek (2005), we can argue that neo-corporatism has been more conducive to the institutionalisation of environmental concerns, compared to states dominated by a neo-liberal ideology. Wind power can be regarded as an example of economic and political mobilisation around environmental concerns. This mobilisation has been most successful in NRW, less so in the Netherlands, and least so in England. In the latter case, the neo-liberal emphasis on cost-effectiveness and competition has added to the limited success.

Kahn (2004) has argued that, generally, the ongoing professionalisation of the wind sector may undermine social acceptance. When both the energy market as well as the wind power market become concentrated in the hands of a few large actors, it can become more difficult for cooperatives and small landowners to develop projects themselves (Kahn, 2004). In NRW, this has happened to a certain extent: wind project development has become increasingly the business of medium-sized and larger companies, and their approach has in cases undermined local social acceptance. On the other hand, there are still developers who only develop projects if the local community is interested in co-owning the project. These are no longer small projects, which means that the dichotomy between corporate or utility-owned large-scale commercial wind farms on the one hand and small locally owned ideologically motivated projects on the other does not apply to the present situation anymore.

In addition, both English and Dutch project developers appear to be at least a partially aware that social acceptance is not something that you can create through a one-way information campaign.

The influence of landscape traditions, energy-activism and politics

Several case-specific (institutional) characteristics have influenced the diverging trajectories and achievements. In England, the cultural historic landscape protection tradition is strong and institutionalised in organisations that have a long standing. Local authorities have been sensitive and responsive to complaints from landscape protection organisations, and many project proposals have been turned down with reference to landscape impacts. In the Netherlands and NRW, this tradition is apparent as well, but much less strong and influential than in England. It appears that the strength of such traditions influences local

planning and decision-making for wind power. A more in-depth analysis would however be needed to arrive at a better understanding of how landscape values and related identity issues affect local planning for wind power.

The translation of environmental and anti-nuclear activism into grass roots activities in alternative energy generation has affected implementation achievements as well. Especially in NRW, but also in the Netherlands, it was such activism - translated into renewable energy projects - that at first was most successful in mobilising societal and local support. In England, a similar tradition of grass roots energy activism was virtually absent, and locally based projects have been rare. In NRW, more than in the Netherlands, the grass roots tradition is still visible among those project developers who are convinced that an approach of local ownership works best. Whereas in the early years, they only launched small projects, nowadays several developers have initiated larger and commercial locally owned schemes.

The influence of the national political configuration on policy choices has been more apparent in England and NRW than in the Netherlands. In the Netherlands, the overall political priority for wind power development has been relatively low, regardless of the political configuration throughout the years. In England, policies in the eighties and nineties were strongly influenced by the Thatcherite legacy, which placed emphasis on rapid commercialisation and competitiveness, while discarding environmental concerns and the role of spatial planning. With the advent of New Labour in 1998, wind power policies became explicitly part of a cost-effective climate change policy strategy. In line with the neo-liberal paradigm, a quota obligation system was adopted, as this was regarded as more market compatible than a feed-in tariff system. Competition among generators was thought to automatically reduce the prices of wind-generated electricity, without the need for further public intervention. In Germany, federal policy-making for wind power was characterised throughout the years by fierce political struggles between the representatives of the conventional energy sector and those favouring renewables. The latter have been successful in lobbying and safeguarding support at national level, helped by the early rise of the Green Party. At the state level in NRW, policy processes were much less adversarial and politicised than at the federal level.

Role of local authority

Although different planning systems are in place in the three geographical units that we examined, decisions on wind power implementation are in each case taken at the local level. Even so, local

planning has been losing powers in all three cases. A general trend in planning has been to increasingly prioritise the ‘common good’ (e.g. fighting climate change) over and above local concerns.

As for wind power and local planning, an important difference between the three cases is that in NRW, the local authority must take a pro-active decision about wind power developments. Although the *Privilegierung* has been regarded as a measure that curbs the discretion of local authorities, the decision about where wind power developments will or will not be allowed is made by the local authority and not decided on by higher-level authorities. In the Netherlands, a pro-active decision is also needed before a planning proposal can be submitted, but in reality it is often lacking. Both national government and actors from the wind sector have therefore called for a central or provincial designation of sites for wind power development to enforce a local positive decision. In England, the local authority weighs the proposal against material considerations. The decision on a proposal can move from the local up to the national level, should a developer lodge an appeal against the refusal of planning permission.

A pro-active role of local authorities and local planning makes it possible to consider the potential local burdens and benefits of wind power development. Since wind power implementation takes place at the local level and hence affects a variety of interests at that level, and since this is also where opposition mostly occurs, transferring decision-making on wind power implementation to a higher administrative level is unlikely to solve local conflicts around wind power implementation. The Q sort reflects current disagreements on what the role of the local authority should be in planning for wind power.

Limited institutionalisation of participation

A similarity among the three cases concerns the fact that nowhere have collaborative practices been institutionalised in planning. It should be remembered, however, that inclusive approaches can also result from local ownership and from project development by actors that are rooted in the local community - as we saw in NRW.

In each case, respondents involved in planning, as well as those from nature and landscape protection organisations - who generally count as conditional supporters - highlighted similar areas of contention. These relate to local decision-making concerning development and land-use, where economic, environmental and political goals are often irreconcilable. In each case - but strongest in England - both conditional supporters and opponents criticised the lack of participation, the absence of local benefits, and the branding of opposition as being unfounded or

illegitimate. We found that, in varying degrees, national policy and wind project developers have inquired too little into the motives behind local opposition. Both the Q sort and the story comparison revealed that contentious issues across the cases involve landscape values, participation in project planning and local decision-making, financial participation, the role of local authorities and the understanding of motivations behind opposition. These are all issues that become manifest at the local level of implementation, where they result in debates and conflict.

The Q sort analysis showed that developers in NRW favoured planning participation, financial participation and local ownership, more than English developers did. It also showed that the perspective that regards wind power as a contested issue received most support in England. Different perspectives are connected with different experiences that can be related to the actual implementation achievements. The NRW case involves more experience with (and a stronger preference for) participative approaches, while at the same time there has been less controversy and a much better implementation record.

Balancing act at the level of implementation

The economic impact of a wind scheme varies locally, and the way in which economic benefits accrue to members of the local community depends on who owns and develops the project and in what manner. Local ownership guarantees local economic benefits and at least partial local commitment. Moreover, positive social impact can result from the joint commitment to and cooperation in a wind scheme. A project developed by outside companies may also bring such benefits, and in fact all three cases contain examples of developers who have encouraged early local involvement and/or offered financial co-ownership. Nevertheless, many developers prefer a Decide-Announce-Defend approach, because they expect that that will save them time and money.

In terms of environmental impact, a wind project contributes to global environmental aims by replacing fossil fuel. However, the environmental impact at local level is not necessarily positive. A wind scheme has an impact on the landscape and on amenities, even if nature and environmental protection standards are applied. The question is how the benefits of decreased global warming should be weighed against the value of cherished landscapes or local quality of place. The former is hard to express in numbers (e.g. of CO₂ reduction) that are meaningful at a local level; the latter includes value judgements (Owens, 1994).

An approach with inherent, institutionalised priorities that takes account of other (local environmental, economic, social) interests allows

for deliberation on the costs and benefits of wind power development at the local level. Together with an approach that favours local ownership, it is more likely to result in successful implementation than a top-down approach, as it creates the basis for social acceptance and commitment to wind power developments.

9.3 Wider relevance of the conclusions

Financial support system

We selected our cases from within the European Union, and the following part discusses the relevance of the conclusions on our three cases when considering wind power implementation achievements in other geographical units within the EU. It may even be the case that some of our conclusions provide some leads for research on achievements outside the EU as well, or for research on the implementation of other renewables, but we will not go more deeply into that here.

On a generalised level, one conclusion would be that a prerequisite for successful wind power implementation is that policies that provide financial incentives are consistent and stable over time, and that they allow profitable wind project development. The choice for a certain type of financial support system appears to be influenced by ideological preferences. Neo-liberal governments have opted more often for quota systems, believing these to be more market-compatible than feed-in tariff systems. A quota system involves price competition among generators that offer their electricity for sale. Generators directly participate in a market where electricity is sold and purchased. Hence, a quota obligation system is considered more market-conform, because even though it may be strongly regulated, it is the market and not the government that decides on the prices. Furthermore, the objective of green certificate regulation is that market places are established for certificate trade. However, it is important to recognise that all re-regulation in the European energy markets so far has resulted in the concentration of power in the hands of a decreasing number of very large vertically integrated energy utilities. A level playing field is absent when independent generators are dependent on these integrated utilities for either contracts or grid access, and when these utilities themselves are also active in wind project development (be it indirectly through their subsidiaries). Vertically integrated companies that are competitors of independent generators can use their position as managers of the grid to

throw up barriers, e.g. through grid codes, technical requirements and related regulations that work out negatively for wind power (EWEA, 2005).

Moreover, competition among project developers in getting contracts and prices paid per kWh does not automatically lead to a decrease in costs per kWh, which is an ultimate goal of a market-based approach. Wind power has high capital costs, and that is where a competitive advantage is to be had. Whereas fossil fuel plants have since liberalisation cut costs by lowering the operational costs (e.g. decreasing the number of personnel), for wind turbines this is not an option. A price decrease is largely achieved through the production of turbines with enhanced price-performance ratios. The market for wind turbines in its turn depends on a stable support system that encourages developers to purchase turbines. Hence, the belief that a quota-system is more market-compatible discards the fact that competition in prices is not the main determinant of successful market development in wind power (Meyer, 2003), and it neglects the present oligopolistic structure of the liberalised energy markets, which hinders proper competition and a level playing field.

The feed-in tariff system is based on the idea that the state should create a market framework to foster competition and to prevent monopolistic or oligopolistic behaviour. The feed-in tariff system facilitates market access as well as access to the grid in order to reach these aims. The feed-in tariff system has explicitly aimed at facilitating newcomers, and has been successful in this (Lauber, 2004). Through its simple focus on yield and by guaranteeing access to the grid, the feed-in tariff system encourages developers to reach the highest yield against the lowest costs, as that will increase their profits. Furthermore, our comparison demonstrated that a support system that encourages a diversity of actors to become involved in wind project development is more likely to result in practices of local ownership, a project development approach that is more conducive to social acceptance or even active commitment from actors at the level of implementation. This positively influences implementation achievements. When the aim is to encourage competition in the wind power market among a diversity of project developers, attributing a leading role to the energy sector will negatively affect the level playing field.

Challenging the incumbent energy system

Any new renewable energy technology needs strong political prioritising because it is introduced in the sometimes hostile and often unsuitable institutional context of the conventional energy system. What is needed

is a willingness to challenge existing perceptions on energy supply and generation, existing energy infrastructure, as well as the incumbent institutional setting - which overall is more supportive of conventional energy generation and supply than of renewables. Encouraging wind power development necessitates policies and incentives that may work against the established patterns and interests in the incumbent energy system; consequently, (institutionalised) power differences and inequalities will need to be addressed and changed as well. In any case, wind power implementation will not be well served if the conventional energy sector had a dominant influence on the type of policies chosen.

Cooperation and mobilisation of support

The way in which actors involved in wind power schemes develop capacities to cooperate, to get organised and to mobilise support is of vital importance. It is not only the mobilisation of support at the national level of politics and policy-making, but also that at the level of implementation, which will affect longer-term developments and the garnering of social acceptance.

In addition, government has to play a role in facilitating cooperation and the formation of a policy community around wind power. Since wind power involves and affects a variety of interests, policy-making needs to address all of these, which means that not just actors involved in wind power development, but also environmental, nature protection, landscape protection and other interests should be included in processes of policy formation. This can help prevent conflicts and create a commitment to wind power.

Traditions and politics

Traditions in landscape and countryside preservation can influence reactions to wind power developments, because concerns about wind power development are very much related to the landscape impact. Grass roots landscape protection traditions can inspire local and national networks that either oppose or conditionally support wind power developments, and effectively impede wind project development.

Next, the presence or absence of grass roots traditions in local energy activism can affect developments. Since this kind of activism involves locally based wind projects, it triggers experience with local participation through co-ownership in such projects.

Hence, where established landscape grass roots can work to impede wind power implementation, wind power grass roots experiences can lead to enhanced social acceptance and implementation. Outcomes are path dependent in these senses, but these influences work in

interaction with other institutional variables in the relevant policy domains. Moreover, these influences may not be present in other cases. In Spain for instance, there appears to be no significant landscape protection tradition and accordingly, opposing networks are much less apparent (Alvarez-Farizo and Hanley, 2002).

Finally, the political configuration may or may not have a strong influence. The presence of political support for wind power in sections of the political establishment, e.g. Green parties, is relevant to secure a prioritisation of wind power development. More generally the institutionalisation of environmental concern in other policy domains affects the longer-term commitment to wind power implementation.

Planning and local decision-making

It is important to have planning policies that are favourable to wind power implementation, but one should realise that they can conflict with traditions of local spatial planning and cause reluctance among local planning authorities, for instance if they provide unclear or ambiguous guidance on how to balance national versus local interests. Furthermore, political and planning institutions that support or impede collaborative practices affect processes at the level of implementation.

Local investments, siting and social acceptance are all affected by the way in which decision-making is organised at the level of implementation (in our cases, this was the local level). Negative attitudes towards wind power are not as such a main barrier for implementation. After all, such attitudes are common towards many kinds of development. At any rate, in the case of wind power, negative attitudes do not represent a majority opinion. What is important is how negative attitudes become represented at the local decision-making level. The extent to which negative evaluations result in active opposition depends on whether or not these actors get organised in networks opposing wind power development. In addition, local networks that support wind power implementation, in the form of local ownership, also affect these processes. In our cases (and in most other cases as well) decision-making on wind power takes place at the local level. Where this is not so (e.g. in Spain, the decision is taken at the regional level), the proliferation of local networks will have a less significant impact on the decision-making process.

If a collaborative planning approach is adopted, there is room for deliberation about the most significant aspects of a wind proposal (i.e. the location and size) and about the concerns about potential impacts. Concerns may then be accommodated - e.g. through changing the location or size of the project. Conditional supporters or sceptics who

have had influence on the key decisions need not become part of a local anti-wind network. Furthermore, financial participation may be offered in order to generate some economic benefits for the local community. In contrast, if local interests are not given a voice in decision-making processes, even conditional supporters may turn into opponents. Hence, the manner in which local decision-making takes place may reinforce negative attitudes and even prompt the formation of opposing local networks. This does not mean that a collaborative approach is a universally applicable remedy to overcome conflict and reach implementation. If local opposing networks are strong, a collaborative approach is unlikely to defuse this opposition. Those fundamentally opposed will not be inclined to cooperate since they are not interested in negotiating the design or the distribution of benefits.

Path dependency

When inquiring into the unfolding of the historical trajectories of wind power implementation, a multitude of interdependent variables that affected these processes need to be addressed. In our cases, we identified the following significant variables: arrangements in the domains of energy, planning and environmental policy; politics; and traditions in landscape protection and grass roots energy activism. These variables can be regarded as institutions, since they involve either cultural or procedural rules, and can be analysed in terms of their effect on outcomes.

They are path-shaping in that they affect the choice of financial support system, the incentives provided, the development of a policy community (through cooperation and/or conflict), the success in challenging incumbent institutions (through the ability to create a new path for wind power so that it overcomes its marginal position of being a side activity within the conventional energy system), and local social acceptance (through involvement, new networks, the establishment of new perceptions of and commitments to wind energy generation).

9.4 Adopting a strategy of institutional capacity building

The concept of institutional capacity building helped us to qualify the historical trajectories in each case, taking into account the interdependent and changing political, economic, environmental and planning conditions. Institutional capacity building partly explains the diverging achievements in terms of implementation. Local investment decisions,

siting processes and social acceptance are influenced by a complex set of interdependent variables that are rooted in institutional arrangements. Case-specific historical characteristics like the presence of grass roots in landscape traditions and the existence of local energy activism can affect the path of developments; this is all the more likely if concerns of these networks have become institutionalised in politics and practices around wind power implementation. Even so, pathways are not deterministic and changes in the broader (institutional) context can result in unexpected consequences, like for instance the unintended effect of liberalisation on Dutch ownership patterns.

We have addressed the issue of social acceptance by examining the structural conditions that affect local project planning contexts. For an in-depth understanding of the extent to which these conditions influence local support and opposition, and for a better understanding of the different types of opposition and support, further research is needed (Devine-Wright, 2005).

In policy-making, there is a need to move away from mere targeting of production capacity increases towards an approach that recognises the interrelated institutional conditions that affect wind power developments and that acknowledges the importance of participation and social involvement in project planning and implementation. Such a new policy paradigm (Szarka, 2006) would be in line with *strong* ecological modernisation, as it would involve an integration of economic, environmental and social dimensions in policy-making. It furthermore would acknowledge the need to build institutions capable of learning and cooperation and would grant more importance to the *socio-political potential* of wind power.

An overarching question is how to shape environmental reform, in such a way that the reforms are institutionalised at the level of economic, social, cultural and political life. For this, institutional changes are needed at the level of democratic decision-making as well as changes in the way policy-making takes place. For wind power, the discussions should be placed in the light of environmental concern, future energy supply and use. In addition the broader context of land-use planning, spatial planning, agriculture, countryside values, rural local regeneration and nature and landscape protection should be part of such discussions.

A main conclusion has been that for a continued implementation of wind power, an approach is needed with inherent, institutionalised priorities that take account of diverse (local environmental, economic, social) interests.

At present the atmosphere around wind power is rather tense, especially in England and the Netherlands. This polarisation makes it all

the more difficult to initiate a constructive dialogue about the merits and disadvantages of wind power, both at the local and national level. However, if policy makers and developers stick to the silent assumption that wind power represents an uncontested common good, this will not solve existing conflicts. Policy and decision-making on wind power involves value judgements, which need to be discussed; it will not do to treat some values as a common good, or as established political choices and therefore non-negotiable, while disposing of other values as 'emotional arguments'. Both governmental actors and project developers have an important role in facilitating and organising such a dialogue.

If we are to continue along the road to a sustainable energy economy, we will increasingly be confronted with resource-dependent, decentralised, and location-dependent applications. Social acceptance relates to a commitment at various levels in society and to a variety of reasons to support or oppose a development. In the case of wind power we need to consider how environmental, economic and landscape interests are relevant at the level of implementation. Instead of an approach that takes wind power implementation as a good thing and that aims at 'winning hearts and minds' - with reference to the 'common good' - more effort is needed to implement wind power in a manner that is regarded legitimate, in terms of process and cost-benefits sharing. Such a strategy would involve the institutionalisation of participation in project planning and local decision-making (democratic legitimacy) and through facilitating local ownership (legitimacy through sharing benefits). This would be conducive to mobilising support at the level of implementation and as such help to build support for a longer-term path towards more sustainable energy generation.

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List of Abbreviations

ACF	Advocacy Coalition Framework
AEP	Association of Energy Producers
AER	Energy Advisory Council (Algemene Energieraad)
AIEP	Association of Independent Electricity Producers (later AEP)
BEE	Association for Renewable Energy (Bundesverband Erneuerbare Energie)
BETTA	British Electricity Transmission and Trading Arrangements
BDI	The Federal Association of the German Industry (Bundesverband der Deutschen Industrie e.V)
BLOW	Administrative Agreement on the National Development of Wind Power (Bestuursovereenkomst Landelijke Ontwikkeling Windenergie)
BLS	Federal Association for Landscape Protection (Bundesverband Landschaftsschutz)
BMFT	Federal Ministry for Research and Technology (Bundesministerium für Forschung und Technologie)
BMWA	Federal Ministry for Economics and Employment (Bundesministerium für Wirtschaft und Arbeit)
BMU	Federal Ministry of Environment, Nature Conservation and Nuclear Safety (Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit)
BMBF	Ministry for Education, Science, Research and Technology (Bundesministerium für Bildung und Forschung)
BMI	Interior Ministry (Bundesministerium des Innern)
BPW	Administrative Agreement on Siting Problems regarding Wind Energy (Bestuursovereenkomst Plaatsingsproblematiek Windenergie)
BSC	Balancing and Settlement Code
BUND	Association for Environmental and Nature Protection (Bund für Umwelt- und Naturschutz Deutschland)
BWE	German Wind Energy Association (Bundesverband Windenergie)
BWEA	British Wind Energy Association
CCL	Climate Change Levy
CDA	Christian Democratic Appeal (Christen Democratisch

	Appel)
CDU/CSU	Christian Democrats (CSU in Bavaria) (Christlich Demokratischen Union/Christlich-Soziale Union)
CEGB	Central Electricity Generating Board
CHP	Combined Heat and Power
CO ₂	Carbon dioxide
CPRE	Council for the Protection of Rural England/ Campaign to Protect Rural England
DAD	Decide-Announce-Defend
DEFRA	Department of Environment, Food and Rural Affairs
DENA	German Energy Agency (Deutsche Energie Agentur)
DEWI	German Wind Energy Institute (Deutsches Windenergie-Institut GmbH)
DG	Direction Générale (EU Commission)
DNR	German Nature Protection Ring (Deutsche Naturschutzring)
DoE	Department of the Environment
DoEn	Department of Energy
Dta	German public bank (Deutsche Ausgleichsbank, merged with KfW in 2003, now part of KfW banking group)
DTI	Department of Trade and Industry
D'66	Democrats'66 (Democraten 66)
EC	European Commission
ECN	Netherlands Energy Centre (Energie Centrum Nederland)
EEG	Renewable Energy Sources Act (Erneuerbare-Energien-Gesetz)
EIA	Environmental Impact Assessment
EM	Ecological modernisation
ERA	Electricity Research Association
ETSU	Energy Technology Support Unit
EU	European Union
EVU	Energy supply company (Energieverbundunternehmen)
EZ	Ministry of Economic Affairs (Ministerie van Economische Zaken)
FDP	Free Democrat Party (Freie Demokratische Partei)
FFL	Fossil Fuel Levy
FGW	Association to Promote Wind Energy (Fördergesellschaft Windenergie e.V.)
FLD	Friends of the Lake District

FoE	Friends of the Earth
GDR	German Democratic Republic
GEP	Regional Development Plan (Gebietsentwicklungsplan)
GO	Government Office for the Region
IC	Institutional capacity
IGBCE	Trade union for mining, chemicals, energy (Industriegewerkschaft Bergbau Chemie, Energie)
IPWA	Inter-provincial Wind Energy Project Afsluitdijk (Interprovinciaal Windenergieproject Afsluitdijk)
IWR	International economic forum renewable energy (Internationales Wirtschaftsforum Regenerative Energien)
KfW	German Bank for Reconstruction and Development – merged with Dta in 2003 (Kreditanstalt für Wiederaufbau)
LEC	Levy Exemption Certificate
LEP	State Development Plan (Landesentwicklungsplan)
LEPro	State Development Programme (Landesentwicklungsprogramm)
LNU	NRW State Association for Nature Protection and the Environment (Landesgemeinschaft Naturschutz und Umwelt NRW e.V.)
LNV	Ministry of Agriculture, Nature and Food Quality (Ministerie voor Landbouw, Natuur en Voedselkwaliteit)
MP	Member of parliament
MW	Megawatt
MWh	Megawatt-hour (equals 1,000 kilowatt-hour (kWh))
NDPB	Non Departmental Public Body
Neta	New Electricity Trading Agreements
Newin	Dutch Association for Wind Energy (Nederlandse Windenergievereniging)
NFFO	Non Fossil Fuel Obligation
NFPA	Non Fossil Purchasing Agency
NGC	National Grid Company
niaby	Not-in-any-backyard
nimby	Not-in-my-backyard
NKPW	National Critical Platform Wind Energy (Nationaal Kritisch Platform Windenergie)
NOVEM	Dutch Organisation for Energy and the Environment (Nederlandse Organisatie voor Energie en Milieu)
NRW	North Rhine-Westphalia

NWEA	Dutch Wind Energy Association (Nederlandse Wind Energie Associatie)
ODE	Organisation for Sustainable Energy (Organisatie voor Duurzame Energie)
ODPM	Office of the Deputy Prime Minister
Offer	Office of Electricity Regulation
Ofgem	Office of Gas and Electricity Markets
PDE	Project Office Sustainable Energy (Projectbureau Duurzame Energy)
PIU	Performance and Innovation Unit
PKB	Key physical planning decision (planologische kernbeslissing)
PPG	Planning Policy Guidance note
PPG22	Planning Policy Guidande note number 22: “Renewable Energy”
PPS	Planning Policy Statement
PPS22	Planning Policy Statement number 22: “Renewable Energy”
PvdA	Labour party (Partij van de Arbeid)
PVE	Platform for Acceleration of Energy Liberalisation (Platform Versnelling Energieliberisering)
R&D	Reseach and Development
R, D&D	Research, Development and Demonstration
R,D,D&D	Research, Development, Demonstration and Dissemination
REAG	Renewable Energy Advisory Group
REC	Regional Electricity Company
RES	Renewable energy sources
RO	Renewables Obligation
ROC	Renewables Obligation Certificate
RPA	Renewable Power Association
RSPB	Royal Society for the Protection of Birds
RDA	Regional Development Agency
RPG	Regional Planning Guidance
SEP	Branch of the energy producing companies (Samenwerkende Energie Producenten)
SNM	Foundation for Nature and the Environment (Stichting Natuur en Milieu)
SP	Supporting Programme
SPD	Social Democratic Party of Germany (Sozialdemokratische Partei Deutschland)

SRU	Environmental advisory body with social and natural scientists (Rat von Sachverständigen für Umweltfragen)
StrEG	Electricity Feed Act (Stromeinspeisungsgesetz)
UBA	Federal Environmental Office (Bundesumweltamt)
UK	United Kingdom
UKAEA	United Kingdom Atomic Energy Authority
UNCED	United Nations Commission on Environment and Development
US	United States
VDEW	Association of German utilities (Verband der deutschen Elektrizitätswirtschaft)
ver.di	Trade union for public service employees (Vereinte Dienstleistungsgewerkschaft)
VDMA	Federation of the Engineering Industries (Verband Deutscher Maschinen- und Anlagenbau)
VDN	Association of German Network Operators (Verband der Netzbetreiber)
VIK	Association of Industrial Energy and Power sector (Verband der Industrielle Energie- und Kraftwirtschaft e.V)
VNG	Union of Dutch Municipalities (Vereniging voor Nederlandse Gemeenten)
VRE	Association of Utilities and Regional Energy Suppliers in Germany (Verbandes der Verbundunternehmen und Regionalen Energieversorger in Deutschland)
VROM	Ministry of Housing, Spatial Planning and Environment (Ministerie voor Volkshuisvesting, Ruimtelijke Ordening en Milieubeheer)
VVD	Peoples' party for freedom and democracy (Volkspartij voor Vrijheid en Democratie)
V&W	Ministry of Transport and Water management (Ministerie voor Verkeer en Waterstaat)
VWNH	Association of Wind Turbine Operators North-Holland (Vereniging Windturbine Eigenaren Noord Holland)
WEG	Wind Energy Group
WSH	Wind Service Holland
WWF	World Nature Fund

Annex A

Coded arguments as identified in interviews

1. Administrative competences (admcom): Horizontal and vertical administrative coordination, integration, and cooperation is important. National government has an important steering role in this (setting targets, defining aims, outlining the roles of various levels of government).

2. Inclusive national policy formation (natpol): National policy-making should *structurally* involve stakeholders from society, industry and environmental organisations.

3. Procedural constraints (proced): The appeal system provides too many opportunities to object, the resulting delays are harmful for wind energy implementation. Permitting procedures are a barrier.

4. Local municipalities' responsibilities (localres): Municipalities should recognise their societal and political responsibility with regard to wind power implementation. It is important that they take on national targets.

5. Careful planning (careplan): Anyone who wants to build something must take account of planning and permitting procedures and this of necessity takes time. Procedures ensure are about safeguarding legal protection, for the sake of both the applicant and the person who says he or she will be harmed by the development.

6. Administrative culture (admcult): Central or regional designation of locations for wind projects would be at odds with the incumbent administrative culture, in which municipalities have a final say about local land-use planning.

7. Attitude of local planners (locatt): The attitude of local authorities towards wind power is usually negative.

8. Planning is a barrier (planbar): The planning system is a barrier to development generally, including wind power implementation.

9. Government as a starting motor (govmot): Government needs to take up a catalyst role in the early development of a technology like wind power. Especially at the start, government should participate in the market and take part of the risks, in order to speed up market developments.

10. Comprehensive approach (compreh): A sustainable energy policy would encompass energy, environmental, economic, social and planning dimensions, and accordingly knowledge and experiences from

various stakeholders should be addressed to come to a comprehensive, long-term, energy strategy.

11. Obligation to reserve space (oblire): To improve implementation, municipalities should be obliged to reserve space for wind energy in their local plans.

12. Nimby: local egoistical behaviour (nimby): People/municipalities/provinces say: yes wind power is great, but not in our backyard please.

13. Realistic goals (realgoa): It is important to keep goals realistic, and to look at what is possible on a case-by-case basis, taking into account environmental and landscape impacts. Sticking merely to nationally-set targets is not helpful for improving installed capacity levels

14. Renewable energy market development (remar): Financial support is decisive for implementation.

15. Wind energy is big business (bigbus): Wind power development is only about making profits and this usually goes at the expense of other and other peoples' interests.

16. Commercialisation/cost-effectiveness (costeff): Cost-effectiveness is crucial, and emphasis on commercialisation ensures that wind power can compete with conventional sources of energy

17. Level Playing Field (lpf): A proper level playing field is crucial, but lacking, because energy companies and large developers are in an advantageous position vis-à-vis smaller independent companies

18. Sense of urgency for the environment (prienv): We need to prioritise the environment, as it is a common good, but this must be done in consultation with society.

19. Sense of urgency for the environment (prienv+): The environment is at stake and a sense of urgency is lacking. We need to prioritise wind power, if necessary in a directive and norm-setting manner.

20. Landscape (landsca): No wind parks should be allowed, as they disrupt our countryside and cherished landscapes.

21. No contribution (nocon): Wind energy does not deliver a significant contribution to our electricity supply, when set against the price and the damage to the landscape.

22. Nature protection and wind (natprot): Wind energy is good, but projects should not be built too close to areas with important ecological values.

23. More ways (morew): There are more ways to reach CO₂ reduction. Wind power is not the only option. Other renewables and energy efficiency receive too little attention and support in comparison with wind.

24. Financial participation for local support (locfin): Financial participation in wind project developments helps implementation as it facilitates the local supportive basis.

25. Pragmatic participation (pragpart): You cannot get around the business of talking with local actors when you want to build a wind farm. Objections of residents and stakeholders should not be underestimated.

26. Participation from the very beginning (partbeg): Local residents should be informed properly, from the very beginning, and not only when the plan is ready.

27. Bottom up (bottup): Processes for implementation of wind energy should be organised bottom-up and then be facilitated and supported by provincial/regional and national governments.

28. Overkill of Reports (report): Too much research and reports does not help implementation of wind energy. It merely helps consultants to earn money and it helps unwilling governments to postpone a project by commissioning more studies.

29. Local expertise (locexp): At the municipal level, a lack of knowledge and expertise often results in a hesitant attitude towards wind energy.

30. Education to diminish opposition (edupos): Education is an important means to take away local opposition.

31. Technocratic approach (technocr): The emphasis should be on the development of industry and technological improvements.

32. Cooperation and good relations in the sector (relsec): Good relations between the players in the wind power sector (e.g. industry, knowledge institutes, investors, generators and energy companies) are an important condition to reach successful wind power developments.

33. One voice (onevoic): As long as the wind energy sector consists of a variety of actors who all want something else and are not able to cooperate, they cannot exercise any proper influence on policy-making. To have any leverage, they need to cooperate and present themselves as a unified front.

34. Nobody dares (nodare): Many people wear different hats. Personally they see nothing in wind energy, but professionally they will never say so, out of fear of being branded as anti-environmental.

35. Technical hurdles (techbar): Problems with the grid impede wind power implementation.

36. Political factors (polfac): Political factors (e.g. change in government) seriously affect the policies that are in place for wind power.

Annex B

Overview respondents

Dutch case (interviews held in 2002 and 2003)

Name	Organisation	Stakeholder type	Q sort ^a	Month & Year
Mrs. A. Goedmakers	NUON	Wind project developer: energy sector	+	October 2002
Mr. R. Kelder	WEOM	Wind project developer: consultant-developer	+	December 2002
J. Springer	Zeeuwind Cooperative	Wind project developer: cooperative	+	November 2002
Mr. M. Kortenoever	Pawex	Branch of private wind operators	+	November 2002
Mr. E. van Zuilen	Ecofys and Newin	Wind project consultant- developer and Wind energy branch	-	May 2003
Mr. C. List	VWNH	Provincial farmer wind developers' branch (North- Holland)	+	April 2003
Mr. H.B. Schurink	EnergieNed	Energy distributors' branch	+	December 2002
Mr. A. v.d. Giessen	FME groep Windenergie	Branch of wind turbine manufacturers	+	April 2002
Mr. R. van Leeuwen	Greenpeace Netherlands	National environmental organisation	+	December 2002
Mrs. J. Stoop	Wadden Association	Regional nature and landscape protection organisation	+	November 2002
Mr. H. Zwarberg	Stichting Windhoek	Local anti-wind group	+	December 2002
Mr. J. Beurskens	ECN	Energy research institute	+	December 2002
Mr. F. Nillesen	Novem	Government agency that executes renewables policies	+	October 2002
Mr. M. Kersens	Gemeente Wieringermeer	Municipality	+	March 2003
Dhr. B. Burema	Provincie Noord Holland	Province (planning officer)	+	November 2002
Mr. H. Boomsma	Ministerie Economische Zaken (EZ)	Ministry of Economic Affairs (responsible for energy policy)	+	October 2002

Mr. A. Littel	Ministerie Volkshuisvesting, Ruimtelijke Ordering en Milieu (VROM)	Ministry for Housing, Spatial Planning and Environment	+	October 2002
Mrs. S. Agterbosch ^b	University of Utrecht	Social Scientist	+	September 2002

English case (interviews held in 2004)

Name	Organisation	Stakeholder type	Q sort ^a	Month & Year
Mrs. A. Duignan	Baywind Cooperative	Wind project developer: cooperative	+	September 2004
Mr. R. Barker	Wind Prospect	Wind project developer: medium-sized	+	September 2004
Mr. D. McCullough	Npower Renewables	Wind project developer: energy sector	+	October 2004
Mrs. G. Wong	British Wind Energy Association (BWEA)	National wind energy branch	+	September 2004
Mr. C. Tomlinson	British Wind Energy Association (BWEA)	National wind energy branch	-	September 2004
Mrs. G. Hartnell	Renewable Power Association (RPA)	National renewables branch	+	October 2004
Mrs. S. Merrick	Association of Energy Producers (AEP).	National branch for energy producers	+	October 2004
Mr. R. Oakley	Greenpeace UK	National environmental organisation	+	September 2004
Dhr. R. Oxley	Royal Society for the Protection of Birds (RSPB).	National bird protection organisation	+	October 2004
Mrs. A. Davies	Council for the Protection of Rural England (CPRE)	English landscape and nature protection organisation	+	October 2004
Mr. J. Allerbey	Friends of the Lake District (FOL)	Local/regional landscape and nature protection organisation	+	October 2004
Mr. M. Young	English Nature	Non-departmental public body concerned with ecological impacts	+	October 2004
Mrs. A. West	Country Guardian	National anti-wind organisation	+	September 2004
Mr. D. Brierly	Maiwag	Local anti-wind group	+	October 2004

Mr. A. Brunt	North Western Regional Assembly	Regional officer	-	October 2004
Mr. M. Smith	County of Cumbria	County (landscape planning officer)	+	October 2004
Mr. C. Wilton	Municipality Barrow	Municipality	+	September 2004
Mr. D. Wilkes	Office of the Deputy Prime Minister (ODPM)	National ministry responsible for spatial planning	+	September 2004
Mr. M. Devine	Department of Environment, Food and Rural Affairs (DEFRA)	National environmental ministry	+	September 2004
Mr. J. Overton	Department of Trade and Industry (DTI)	National ministry responsible for energy policy	+	October 2004
Mrs. C. Haggett ^b	Newcastle University	Social scientist	+	September 2004

NRW case (interviews held between 2003 and 2005)

Name	Organisation	Stakeholder type	Q sort^a	Month & Year
Mr. G. Benik	Energieteam	Wind project developer: medium- sized company	+	April 2004
Mrs. U. Steinhauser	ABO Wind.	Wind project developer: medium- sized turn-key developer	+	November 2005
Mr. W. Köhnlein	Bürgerwindpark Baumberge	Citizens' wind project	+	November 2005
Mr. J. Lackmann.	BWE NRW; BEE ⁷⁹	NRW wind energy branch; National renewables branch	+	April 2004
Mr. H. Bartelt	BWE	National wind energy branch	+	July 2003
Mr. T. Herdan.	VDMA	National branch of wind turbine manufacturers	+	April 2004
Mr. T. Boehmer,	VDEW	National energy sector branch	+	May 2005
Mr. F. Musiol	Naturschutz Bund (Nabu) Germany	National nature protection organisation	+	April 2004

⁷⁹ The respondent was from both these organisations as well as a former wind developer.

Mr. J. Tumbrinck,	Naturschutz Bund (Nabu) NRW	NRW nature protection organisation	+	August 2003
Mr. S. Teske	Greenpeace Germany	National Environmental Organisation	+	May 2004
Mr. D. Krämer	Bundesverband Landschafts Schutz (BLS)	Anti-wind group (locally active)	+	July 2003
Mr. B. Nedderman	Deutsches Windenergie-Institut (DEWI)	Wind energy research institute	+	May 2004
Mr. A. von Reth	Paderborn Municipality	Municipality	+	April 2004
Mr. K. Lauer	Bezirksregierung Münster	District	+	August 2003
Mr. J. Herrmann	Ministerium für Städtebau und Wohnen (MSWKS)	NRW ministry for Housing and Building	+	July 2004
Mr. Lindemann, Mr. Dorr, Mr. Doppel	Ministerium für Umwelt, Naturschutz, Landwirtschaft und Verbraucherschutz (MUNLV)	NRW environmental ministry	+	July 2004
Mr. F.M. Baumann; Mr. A. Dahlin	Landesinitiative Zukunftsenergien	NRW state initiative to support renewables	+	April 2004
Mrs. C. Viertel	Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit (BMU)	Federal environmental ministry (since 2002 responsible for renewables policy)	+	May 2004
Mrs. C. Wittek	Bundesministerium für Wirtschaft und Arbeit (BMWA)	Federal economic ministry (responsible for energy policy; responsible for renewables policy until 2002)	+	May 2004
Mrs. M. Pletziger	EnerSys	Company involved in project planning and development	-	November 2005
Mr. D. Reiche ^b	Free University Berlin	Social scientist	+	April 2003

^a: + and - indicates that the respondents did or did not do the Q-sort (see chapter 7)

^b: Only Q sort, not interviewed

Annex C

Q sort statements (randomly numbered)

Hierarchic

- 56 In order to successfully implement wind energy, it is a good idea to require local authorities and regional governments to reserve space for wind turbines in their local plans.
- 10 The input from the public in a decision-making process often shows a lack of expertise.
- 4 When building infrastructure, one need not be so concerned about the environment at the local level because this is already taken into account at the national level.
- 33 Professional know-how and scientific expertise ought to play a decisive role in decision making on infrastructure
- 39 It is mainly local groups that try to thwart the construction of wind turbines.
- 54 It is mainly environmental organisations that frustrate the construction of wind turbines.
- 8 Opponents of wind turbine parks are not willing to compromise. Therefore, it is pointless to involve them in the decision-making process.
- 22 National and regional governments should be able to issue directives when local authorities fail to co-operate with the construction of a wind farm.
- 47 More citizen participation leads to even more opposition and even less windmills.
- 32 The problem with public input is that it is primarily based on emotions.

Egalitarian:

- 16 Decisions that are made with the approval of the local community are generally also better decisions.
- 6 Most of the time, important parties are insufficiently consulted during the design phase of wind turbine projects.
- 28 The local community should be able to exert its influence in every phase and on all aspects of the decision-making process.
- 19 Involving potential opponents to a wind farm in a timely manner will increase its chances of getting built.
- 34 Top-down planning of wind parks is detrimental to the eventual implementation of wind energy.
- 12 Power companies have no understanding of planning and are unaccustomed in dealing with local actors.
- 23 It is wrong to take decisions without giving neighbouring residents a decisive influence.
- 49 It is imperative to involve all concerned parties locally before the first design for a wind farm ever sees the light of day.
- 25 Decisions on infrastructure cannot be made by governments alone, but must come as the result of negotiations with all involved parties.
- 46 Local interests are not taken enough into account at the national and regional level, so that every time a wind farm is planned it is understandable that there is local resistance to it.

Individualist

- 41 As far as neighbouring residents are concerned, wind farms should be built in some other place where people live.
- 26 Every local authority would rather have wind turbines built in another local authority.
- 14 Residents don't want to foot the bill for the nation's energy problems by accepting a wind turbine park in their area.
- 30 If good arguments exist for constructing a wind farm in one local authority instead of another, then the local authorities will agree to this.
- 11 Local opposition to a wind farm is nothing more than defending one's self-interest.
- 33 In the end, it is the market that will determine the success or failure of renewable energy.
- 1 It is usually individuals, like landowners, that block the construction of wind turbines.
- 36 Everyone prefers that new infrastructure like railway lines or wind parks are not built too close to their homes.
- 7 It is not so much the participation and involvement in the decision-making process that is important to the success of a given wind farm project, but the compensation for the disturbance caused by it.
- 43 Offering financial participation in wind turbine projects to nearby residents is a good way to defuse opposition.

Fatalist

- 50 The government is not capable to adequately direct the decision making process around wind energy.
- 55 The growing demand for energy and increasing environmental problems cannot be solved by government policy.
- 58 The decision making surrounding wind energy is an unpredictable process that nobody can control.
- 17 It is virtually impossible to exert influence on the implementation of wind energy.
- 37 We can't do anything about the greenhouse effect anyway, so it's pointless to built wind farms.

Spatial Planning

- 40 Local opposition to wind turbines is caused by the way in which decision-making processes take place.
- 3 Public consultation procedures make the decision-making process more complicated and lengthy than necessary.
- 52 Disappointing implementation of wind energy is usually a result of unnecessarily slow and arduous rounds of decision-making.
- 60 Planning processes must be carried out rapidly in order to not scare away investors, operators and power companies.
- 57 Although local opposition to wind projects is quite normal, the public benefit of wind energy is rarely disputed.
- 38 Local initiatives are decisive for the successful implementation of wind energy.
- 20 Unrealistic appreciation of the complexity of the planning process by

initiators is largely to blame for disappointing levels of wind energy implementation.

- 48 The way planning is done (e.g. top-down or via deliberation) determines whether conflicts about the available space are solved and whether a wind farm is actually built.
- 24 Initiators take too little time and effort to fit a wind farm into the existing environment.
- 45 Local authorities should always lend assistance for the realisation of facilities with not just a local, but also a general public interest.

Energy/economy

- 42 Onshore wind energy should be left alone. The future lies in offshore development.
- 31 Uncertainty about the arrangements for renewable electricity scares off potential investors.
- 15 Power companies will always try to keep third parties from entering the wind energy market.
- 29 A guaranteed minimum price for wind energy delivered to the grid is an important factor in successful implementation.
- 27 For successful implementation of wind energy, it is important that power companies do not have too much influence on wind energy policy.
- 51 Financial support geared towards wind energy yield is better than financial support for investments in wind energy capacity.
- 5 Incentives should be directed to the turbine industry, power companies, and research institutes since these parties determine the successful market introduction of renewable energy.
- 2 Incentives should be directed to the development of locations for wind parks and the parties involved in this.
- 21 In a liberalised market, wind energy can only be a success if governments continue to lend support.

Environment

- 9 When making policy on renewable energy, the environment and not energy supply should be taken as a point of departure.
- 13 If wind energy policy is formulated primarily by the Department of Trade and Industry, certain aspects of sustainability and town and country planning will receive insufficient attention.
- 35 Initiators of wind farm projects underestimate the value of the landscape when developing locations.
- 59 The small amount of clean energy that you generate with windmills does not compensate for the negative impact they have on the landscape.
- 53 The system of green energy certificates is good for trade, but not for the environment.
- 18 Before building windmills all over the country, energy efficiency options should be investigated more thoroughly.

Samenvatting

Introductie

Windenergie kan, in combinatie met andere vernieuwbare energiebronnen, bijdragen aan een vermindering van de milieuvervuiling die gepaard gaat met conventionele energieopwekking. Hoewel windenergie op land maar een klein percentage van de algehele elektriciteitsvoorziening uitmaakt, is er met name het afgelopen decennium een gestage groei te zien en zijn de kosten van windenergieopwekking significant gedaald. In Europa stond eind 2004 72 % van de wereldwijd geïnstalleerde capaciteit (48.000 MW).

Verschillende Europese landen hebben sinds de eerste oliecrisis in 1973 beleid voor de ontwikkeling en toepassing van windenergie-technologie. Als we kijken naar wat er bereikt is sinds die beginjaren, wat betreft implementatie (realisatie van projecten), dan zijn de verschillen tussen landen en regio's opmerkelijk. Deze verschillen kunnen moeilijk verklaard worden aan de hand van verschillen in technologische, economische of klimatologische factoren. Een analyse is nodig van sociaal-politieke aspecten die van invloed zijn geweest op de implementatie van windenergie.

Uitgangspunten

Deze studie behelst een vergelijking tussen drie casus binnen Europa, om een beter inzicht te verkrijgen in processen die gemoeid zijn met de maatschappelijke implementatie van een nieuwe duurzame energietechnologie als windenergie. Verschillende uitgangspunten vormen de basis van onze onderzoeks-aanpak.

Ten eerste ziet een nieuwe technologie als windenergie zich geconfronteerd met de gevestigde gecentraliseerde energie-infrastructuur en bijbehorende instituties (regels, waarden en gewoonten binnen het conventionele energiesysteem). Ten tweede is er de politiek-institutionele dimensie. Implementatie van windenergie kan gezien worden als een voorbeeld van ecologische modernisering, een proces waarbij er ook sprake is van een politiek modernisering om tot veranderingen in bestaande praktijken te komen. Een derde uitgangspunt is gerelateerd aan de 'kloof' tussen de goeddeels positieve algemene publieke houding ten aanzien van wind energie enerzijds en het gedrag ten opzichte van specifieke projecten (oppositie) anderzijds. Bestaande lokale casusstudies laten zien dat participatie van belanghebbenden bijdraagt aan succesvolle implementatie van windprojecten te komen. Het gaat dan zowel om participatie in de planning en besluitvorming omtrent het project, als om

financiële participatie in het project. Beiden hebben een positief effect op het lokale draagvlak voor het project. Deze bevindingen vormen een belangrijk uitgangspunt voor dit onderzoek.

Bestaande internationale vergelijkende studies naar ontwikkelingen op het gebied van windenergie besteden niet of nauwelijks aandacht aan de condities die van invloed zijn op lokale investeringsbesluiten, plaatsingsprocessen en sociale acceptatie. In dit internationaal vergelijkend onderzoek relateren we de bredere institutionele context aan condities op het lokale niveau van implementatie. Positieve besluiten over de realisatie van projecten worden genomen op dit lokale niveau. Met het lokale niveau bedoelen we de lokale context waarbinnen het idee wordt opgevat om een windproject te ontwikkelen, waar het besluit wordt genomen om hierin te investeren, en waar de lokale sociale acceptatie van dit project een grote invloed heeft op het al dan niet doorgaan ervan. Wat betreft de formele besluitvorming is het gemeentelijke niveau hier relevant.

De uitkomsten van alle lokale besluitvormingsprocessen ten aanzien van specifieke windenergieprojecten, geaggregeerd op bijvoorbeeld het nationale niveau, zijn uiteindelijk doorslaggevend voor het totaal geïnstalleerde vermogen. De uitkomsten op geaggregeerd niveau kunnen niet los worden gezien van alle lokale processen waarin besluiten genomen worden over de plaatsing van en investering in windturbines

Om tot een beter begrip te komen van processen van maatschappelijke implementatie van windenergie, hebben we ons gericht op de vraag in welke mate windenergie, geïnstitutionaliseerd is geraakt als gevolg van leerprocessen en nieuwe praktijken. Dit noemen we in ons onderzoek institutionele capaciteitsopbouw voor implementatie van windenergie. Centraal stond dan ook de volgende vraag: Hoe kunnen we de uiteenlopende prestaties in implementatie van windenergie verklaren met verwijzing naar institutionele capaciteitsopbouw?

Theoretische benadering

Onze benadering stoelt op het historisch-institutionalisme. We zijn geïnteresseerd in de wijze waarop historisch gegroeide patronen van gedrag en organisatie ontwikkelingen in de toepassing en implementatie van windenergie hebben beïnvloed. Instituties zijn gedefinieerd als regels, patronen of procedures die gedrag en interactie structureren. Doel is om inzicht te krijgen in de mate waarin en wijze waarop windenergietoepassingen in een periode van enkele decennia ingebed zijn geraakt in de bestaande en veranderende praktijken, regels en routines (instituties) van de maatschappij. Op basis van verschillende

institutionalistische benaderingen om beleidsprocessen te bestuderen, alsmede netwerktheorie, zijn we tot een conceptualisering van beleidsprocessen gekomen zoals tabel I laat zien.

Tabel I: Analyse van beleidsprocessen: uitgangspunten

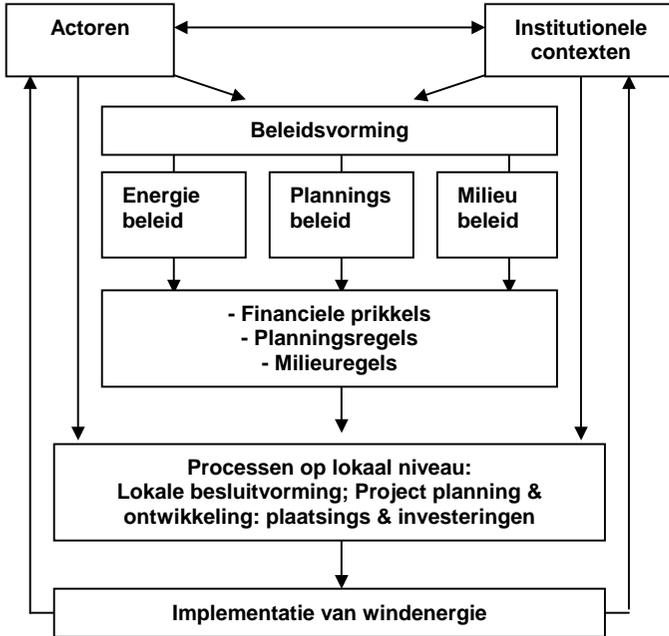
Beleidsproces	<ul style="list-style-type: none"> • Complexe interacties tussen vele actoren, institutioneel ingebed • Lange termijn focus, om veranderingen in beleid en institutionele verandering te kunnen identificeren
Veelheid aan variabelen	<ul style="list-style-type: none"> • Fysiek, situationeel, aard van beleidsprobleem, actor oriëntaties, institutionele settings
Beleidsdomeinen	<ul style="list-style-type: none"> • Analyse-eenheid om beleidsprocessen en -verandering te bestuderen • Actoren en netwerken (publiek en privaat)
Instituties	<ul style="list-style-type: none"> • Faciliteren en beperken actoren en interacties • Geven vorm aan verwachtingen • Weerspiegelen ongelijke verdeling van macht • Kunnen veranderen a.g.v. actie en interactie
Actoren, actie en interactie	<ul style="list-style-type: none"> • Doelgerichte actoren, intentionele actie en interactie • Diverse oriëntaties van actoren (normatief, belangen, cognitief, interactiegericht) • Actie: beïnvloed door instituties en door oriëntaties en capaciteiten van actoren • Interdependentie tussen actoren maakt samenwerking noodzakelijk om problemen aan te pakken • Beleidsuitkomsten zijn resultaat van interactie (samenwerking en conflict)
Leren	<ul style="list-style-type: none"> • Leren door interactie: nieuwe probleem definities, doelen en instrumenten. • Framing: interactief, normatief en argumentatief

Ons conceptueel raamwerk besteedt aandacht aan zowel de veelheid aan institutionele variabelen die op verschillende niveaus invloed uitoefenen, als aan de dynamische relatie tussen instituties en actoren. Figuur I is een schematische weergave van de variabelen en de relaties tussen de variabelen.

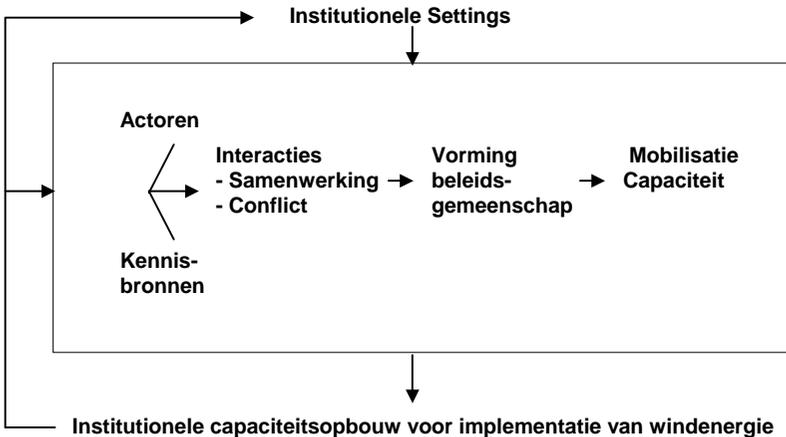
Het concept van institutionele capaciteitsopbouw (figuur II) richt onze aandacht op interactie (samenwerking en conflict) en op de mate waarin uiteenlopende typen actoren en hun kennis betrokken zijn geweest in processen op verschillende niveaus (van nationaal tot lokaal). De bedoeling is te onderzoeken hoe actoren, binnen de bestaande en veranderende institutionele settings, steun hebben weten te mobiliseren voor windenergie, in beleidsvorming, projectplanning en de praktijken gericht op implementatie. Processen van mobilisatie van steun voor implementatie van windenergie door de tijd heen laten zien in welke

mate er mobilisatiecapaciteit is opgebouwd: de capaciteit om afzonderlijke inspanningen te bundelen om zo problemen aan te pakken. Institutionele capaciteitsopbouw voor implementatie van windenergie betreft het institutionaliseren van lerend vermogen, middels open processen die ruimte bieden voor uiteenlopende typen actoren, kennis, en waarden.

Figuur I Beleidsprocessen omtrent windenergie



Figuur II Institutionele capaciteitsopbouw voor implementatie van windenergie



Methode

De onderzoeksmethode is die van meervoudig ingebed casuonderzoek. Van drie afzonderlijk verrichte casusstudies zijn de conclusies vergeleken. We hebben gebruik gemaakt van verschillende databronnen en methoden.

De casus verschillen in succes wat betreft implementatie. Noordrijn-Westfalen (NRW) kan als zeer succesvol worden aangemerkt, Nederland als niet erg succesvol en Engeland als het minst succesvol. Deze kwalificatie betekent dat er in NRW veel meer gerealiseerd is (geïnstalleerd vermogen), in een veel minder conflictueuze omgeving dan met name in Engeland, maar ook dan in Nederland. Elke casusstudie begint rond 1973, maar de nadruk ligt op de periode van 1990 tot 2004. Voor NRW en Engeland hebben we ook de bredere context van Duitsland respectievelijk Groot-Brittannië erbij betrokken, bijvoorbeeld bij de analyse van nationaal beleid en de totstandkoming van netwerken. Tabel II laat zien hoe de afzonderlijke casusstudies gestructureerd zijn.

Tabel II Structurering casuonderzoek

Verhalen over windenergie & implementatie:

Verschillende perspectieven, geconstrueerd op basis van argumenten van belanghebbenden

Beleidsdomeinen:

Energie domein:

Vroege ontwikkelingen; (veranderingen in) organisatie energiesector; liberalisering; project ontwikkelaars; turbine industrie

Planningsdomein:

Planningsstelsel en veranderingen; planningsbeleid t.a.v. windenergie; lokale planningspraktijken t.a.v. windenergieprojecten

Milieubeleidsdomein:

Milieubeleid dat van invloed was op windenergie; institutionalisering van milieukwesties

Beleidsgemeenschappen:

Vroege vorming netwerk(en); consolidatie; rol van grass roots; mobilisatie van steun (voor en tegen windenergie); overheidshandelen t.a.v. beleidsgemeenschap

Institutionele capaciteitsopbouw:

Historisch proces van institutionele capaciteitsopbouw, gerelateerd aan de resultaten in implementatie van windenergie.

Op basis van interviews hebben we voor elke casus verhalen geconstrueerd die perspectieven (van voorstanders, gekwalificeerde

voorstanders en tegenstanders) weergeven ten aanzien van of, hoe en door wie windenergieprojecten gerealiseerd zouden moeten worden. Tegen elkaar afgezet laten deze verhalen de controversiële kwesties zien. In het gedeelte dat erop volgt, wordt dit voorzien van een bredere historisch-institutionele context. Geanalyseerd wordt hoe institutionele condities en veranderingen in de beleidsdomeinen van energie, ruimtelijke planning en milieu van invloed zijn geweest op implementatie van windenergie. Vervolgens is aandacht besteed aan de vorming van een beleidsgemeenschap rondom de kwestie windenergie, ook weer in relatie tot implementatie. We hebben onderzocht hoe dit netwerk in staat is geweest om steun te mobiliseren, op verschillende niveaus (van het lokale niveau tot het nationale niveau). Elk casushoofdstuk sluit af met een discussie over institutionele capaciteitsopbouw voor implementatie van windenergie.

De vergelijking tussen de casus gaat in op de afzonderlijke elementen zoals weergegeven in tabel II. Daarnaast hebben we een Q sort analyse verricht die verschillende perspectieven toont, niet per casus zoals bij de verhalen, maar over de drie casus heen. Het concluderende gedeelte gaat in op de vraag hoe we de verschillen in implementatie van windenergie in de verschillende casus kunnen verklaren aan de hand van onze analyse van institutionele capaciteitsopbouw.

Bevindingen

Hieronder gaan we kort in op de voornaamste bevindingen op basis van de vergelijking tussen de drie casus.

Financiële ondersteuningsmaatregelen

Van belang voor succesvolle implementatie is dat het financiële ondersteuningsbeleid consistent en stabiel is over een langere periode, en dat het rendabele projecten mogelijk maakt. Voorts is een belangrijke conclusie dat de keuze van het financiële ondersteuningsinstrumentarium van invloed is op welke actoren investeren en dat dit vervolgens weer gevolgen heeft voor de lokale betrokkenheid bij de planning en ontwikkeling van windprojecten en lokale sociale acceptatie. Het Duitse terugleververgoedingsstelsel bestond uit een vaste vergoeding per kWh aan windenergieproducenten. Daarbij werden de energiebedrijven verplicht om windenergieproducenten toegang te verschaffen tot het net en de geleverde stroom af te nemen. In Noordrijn-Westfalen heeft dit investeringen van private actoren (individueen, coöperaties, bedrijven) aangemoedigd en de gevestigde energiebedrijven op afstand gehouden. Vanaf begin jaren negentig raakte een diversiteit aan actoren betrokken bij de ontwikkeling van projecten.

In Nederland en Engeland was het beleid in deze beginperiode stukken minder uitnodigend voor private actoren. Al snel waren energiebedrijven vrijwel de enige projectontwikkelaars, wat een negatief effect had op de lokale condities voor projectplanning en realisatie. Omwonenden hadden het idee dat zij de lasten moesten dragen terwijl grote bedrijven winst maakten met windenergieprojecten. Vanaf de beginjaren was lokaal verzet tegen windenergieprojecten een probleem. In NRW daarentegen waren het vaak omwonenden die deelnamen in windprojecten, met name in de beginperiode. In de loop van de jaren negentig kwam hier verandering in, toen als gevolg van de professionalisering van de windenergiesector steeds minder projecten in lokaal eigenaarschap ontwikkeld werden. Echter, tegen de tijd dat lokale oppositie een factor van betekenis begon te worden in NRW, was er al een indrukwekkende hoeveelheid geïnstalleerd vermogen bereikt.

Het terugleververgoedingsstelsel stimuleerde lokaal eigenaarschap, hetgeen weer een positief effect heeft gehad op lokale sociale acceptatie en op de uiteindelijke implementatie. Behalve in NRW, is dit ook te zien in Nederland toen daar in 2002 een terugleververgoedingsstelsel werd ingevoerd. Projecten in lokaal eigendom (agrariërs) zijn in aantal toegenomen en de implementatie is enorm versneld. Het quota verplichtingssysteem in Engeland (2002), waarbij niet de prijs maar de hoeveelheid te produceren windenergie door de overheid wordt vastgesteld, heeft nog niet geleid tot een versnelling in implementatie die vergelijkbaar is met die in Nederland in recente jaren.

Rol energiesector

Een nieuwe duurzame energietechnologie moet politieke prioriteit krijgen, omdat het geïntroduceerd wordt in een goeddeels ongeschikte en vaak ook vijandige institutionele omgeving van het bestaande conventionele energiesysteem. De vergelijking heeft laten zien dat de ontwikkeling van windenergie er niet bij gebaat is als de conventionele energiesector de beleidskeuzen domineert. Ook zijn energiebedrijven niet zonder meer de meest geschikte partij om windenergieprojecten te ontwikkelen. Het succes in Noordrijn-Westfalen is deels te danken aan het feit dat de energiebedrijven in de vroege jaren op een afstand zijn gehouden, dat ze geen doorslaggevende invloed op beleidskeuzes hebben gehad, en dat ze in tegenstelling tot in Nederland en Engeland gedwongen werden om hun net onder redelijke tot gunstige voorwaarden open te stellen voor andere aanbieders.

Mobilisatiecapaciteit

In Noordrijn-Westfalen begonnen ontwikkelingen in windenergie vanuit de *grass-roots* milieu en antinucleaire beweging. Veel burgers namen deel in de ontwikkeling van windprojecten op lokaal niveau. Op die manier is windenergie door de tijd heen ingebed geraakt, als een vanuit milieuoogpunt te prefereren energiebron, als een nieuwe economische sector, en als een sociaal acceptabel alternatief voor conventionele energieopwekking. In de andere twee casus laten de historische ontwikkelingen een gebrek aan zulke inbedding zien. De beleidsgemeenschap rondom de kwestie windenergie in NRW heeft zich van onderop ontwikkeld en was vervolgens in staat om steun op regionaal, deelstaat en federaal niveau te mobiliseren. In Engeland vormde zich een beleidsgemeenschap waarin de energiesector domineerde, die elke connectie met het niveau van implementatie miste en die zich voornamelijk richtte op nationale lobbies. In Nederland was beleidsgemeenschap gefragmenteerd als gevolg van de slechte onderlinge relaties tussen verschillende actoren (turbinebouwers, energiebedrijven, onafhankelijke projectontwikkelaars).

De manier waarop actoren die zich bezighouden met windprojecten, het vermogen ontwikkelen om samen te werken, om zich te organiseren en steun te mobiliseren, is van vitaal belang voor het welslagen van de ontwikkeling van windenergie op de langere termijn. Het gaat niet alleen om de mobilisatie van steun op het niveau van nationaal beleid en politiek, maar ook op het niveau van implementatie.

De overheid moet eveneens een belangrijke rol spelen in het faciliteren van samenwerking. Omdat windenergie een veelheid aan belangen betreft en beïnvloedt, is het van belang dat beleidsprocessen aan al deze belangen aandacht schenken. Dat betekent dat niet alleen projectontwikkelaars en energiebedrijven, maar ook milieu-, natuur-, landschapsbeschermingorganisaties en andere belangen(vertegenwoordigers) betrokken dienen te worden bij beleidsprocessen. Dit kan helpen om conflict te vermijden en betrokkenheid te creëren, en het leidt in veel gevallen op voorhand tot kwalitatief betere plannen

Gevestigde landschapsbeschermingstradities kunnen de implementatie van windenergie kunnen hinderen, en dat zagen we met name in Engeland. Lokale tradities in energiegerelateerd activisme in de vorm van windenergieprojecten (in lokaal eigenaarschap) kunnen resulteren in een vergroting van de sociale acceptatie en implementatie, zoals we in NRW zagen, en in minder sterke mate ook in Nederland.

De lokale planningscontext

In alledrie casus worden besluiten ten aanzien van plaatsing van windprojecten op lokaal niveau genomen. In alledrie casus heeft het lokale niveau van planning de afgelopen decennia ingeboet aan macht ten opzichte van het nationale niveau. Dit wordt onder andere weerspiegeld in de sterker wordende tendens om het 'gemeenschappelijk belang' (bijvoorbeeld het tegengaan van klimaatverandering middels windenergieprojecten) boven lokale belangen en zorgen (bijvoorbeeld over de invloed van windturbines op het lokale landschap) te plaatsen.

In geen van de drie casus zijn participatieve praktijken (verdergaand dan consultatie) geïnstitutionaliseerd in planning. Tegelijkertijd hebben we gezien (met name in NRW) dat participatieve praktijken ook het resultaat kunnen zijn van de aanpak in projectontwikkeling, namelijk wanneer deze lokaal eigenaarschap behelst, wanneer projectontwikkeling plaatsvindt door actoren die deel uitmaken van de lokale gemeenschap, of wanneer de projectontwikkelaar belang hecht aan het betrekken van lokale belanghebbenden in de planvorming.

Een belangrijk verschil tussen de drie casus was dat de Duitse wetgeving gemeenten verplicht om pro-actief een besluit te nemen ten aanzien van de plaatsing van windturbines. Zowel de Q sort als de verhalen lieten zien dat de meest controversiële kwesties gaan over landschapswaarden, participatie in projectplanning, financiële participatie, de rol van lokale autoriteiten en de mate waarin motivaties achter oppositie serieus worden genomen. Dit zijn allemaal kwesties die zich manifesteren op het lokale niveau van implementatie, in de vorm van discussies en/of conflicten. Een pro-actieve rol van lokale overheden in lokale planning maakt het mogelijk om zulke kwesties in overweging te nemen. Omdat windenergie implementatie op lokaal niveau plaatsvindt en daarmee een veelheid aan belangen raakt op dat niveau, en omdat het ook het niveau is waar lokale oppositie tegen windprojecten zich manifesteert, is het onwaarschijnlijk dat het verplaatsen van de besluitvorming over windenergie implementatie naar een hoger bestuursniveau de lokale conflicten rondom projectplanning en -implementatie zal verminderen.

In elke casus, maar het sterkst in Engeland, kritiseerden zowel de gekwalificeerde voorstanders als de tegenstanders van windenergie het gebrek aan participatie, de afwezigheid van lokale baten van windprojecten, en het wegzetten van lokale oppositie als niet legitiem of ongefundeerd. Het onderzoek heeft laten zien dat in uiteenlopende mate, zowel beleidsmakers als projectontwikkelaars zich nauwelijks verdiepen in de motivaties achter lokale oppositie.

Bij een participatieve aanpak is er ruimte voor discussie over de belangrijkste aspecten van een windenergie plan, namelijk de locatie en omvang van het project, en de potentiële impact ervan op de lokale omgeving. In reactie op zulk overleg kan een plan aangepast worden. Gekwalificeerde voorstanders en sceptici die zo invloed hebben kunnen uitoefenen, zullen minder geneigd zijn deel uit te maken van een tegenstandernetwerk. Een participatieve aanpak is overigens niet altijd een remedie om conflict op te lossen en implementatie te realiseren. Indien lokale oppositienetwerken al sterk zijn, zal een participatieve benadering deze oppositie waarschijnlijk niet wegnemen.

Institutionele capaciteitsopbouw

Het concept van institutionele capaciteitsopbouw heeft ons geholpen om de historische processen omtrent de implementatie van windenergie te kwalificeren. Institutionele capaciteitsopbouw verklaart deels de uiteenlopende prestaties in implementatie. Lokale investeringsbeslissingen, plaatsingsprocessen en sociale acceptatie worden beïnvloed door een complexe verzameling van interdependente variabelen die geworteld zijn in institutionele arrangementen. Casusspecifieke historische kenmerken zoals de aanwezigheid van landschapstradities of lokaal energiegerelateerd activisme kunnen het ontwikkelingspad beïnvloeden. Dit is met name waarschijnlijk als de belangen van deze netwerken geïnstitutionaliseerd raken in de politiek en in praktijken rondom de implementatie van windenergie.

Om implementatie van windenergie te verbeteren en conflicten te verminderen of te voorkomen, zou de nadruk die veel beleidsmakers en projectontwikkelaars leggen op productiecapaciteit plaats moeten maken voor een benadering met meer aandacht voor de onderling verbonden institutionele condities die van invloed zijn op implementatie en met meer aandacht voor het belang van participatie en sociale betrokkenheid in projectplanning en implementatie.

Een overkoepelende kwestie is de vraag hoe we milieuhervormingen kunnen institutionaliseren in het economische, sociale, culturele en politieke leven. Ten aanzien van windenergie, zouden discussies in het licht geplaatst moeten worden van milieu, de toekomstige energievoorziening en energiegebruik, de bredere context van landgebruik en ruimtelijke planning, landbouw, (cultuur)landschapswaarden, rurale lokale versterking, en natuurbescherming.

Als we verder gaan op het pad richting een duurzamere energiehuishouding, zullen we in toenemende mate geconfronteerd worden met bronafhankelijke, gedecentraliseerde en locatie-afhankelijke

applicaties. Sociale acceptatie gaat over betrokkenheid van actoren op verschillende niveaus in de maatschappij, waarbij er een veelheid aan redenen en motivaties is om een ontwikkeling te steunen of juist niet. Bij windenergie is het van belang te overwegen hoe milieu-, economische en landschapsbelangen relevant zijn op het niveau van implementatie. In plaats van een aanpak die uitgaat van windenergie als een publiek belang en oppositie afdoet als gebaseerd op ‘emotionele argumenten’, zou het zinvoller zijn om windenergie te implementeren op een manier die door betrokken actoren gezien wordt als legitiem. Het gaat dan om legitimiteit in termen van proces en in termen van het delen van de lusten en de lasten. Een dergelijke strategie zou de institutionalisering van participatie in projectplanning en lokale besluitvorming behelzen (democratische legitimiteit), zodat er ruimte is voor overleg en onderhandeling over de kosten en baten van wind energieontwikkelingen. Samen met een benadering die lokaal eigenaarschap stimuleert (legitimiteit door het delen van baten), zal het met grotere waarschijnlijkheid resulteren in succesvolle implementatie dan het van bovenaf proberen op te leggen van ontwikkelingen, omdat het een basis creëert voor sociale acceptatie van en betrokkenheid bij windenergie.

Summary

Introduction

Wind power, together with other renewables, offers the possibility to address environmental problems that are associated with conventional energy generation and use. Although wind power still constitutes only a small percentage of overall electricity consumption, its contribution has seen a steady growth over the past decades and its costs have decreased significantly. By the end of 2004, Europe was responsible for 72 % of the total installed capacity worldwide.

Since the first oil crisis in 1973, several European countries have had policies for the development and application of wind power technology. Looking at the achievements since those beginning years, in terms of implementation (i.e. concerning the realisation of projects), the differences between countries and regions are remarkable. Technical, economic or climatological conditions cannot provide a satisfying answer to account for these differences. To understand achievements, attention needs to be directed towards the socio-political context in which wind power implementation has taken place.

Points of departure

This study offers a comparison of three cases within Europe, in order to gain a better understanding of the processes that are involved in the implementation in society of a renewable energy technology like wind power. Diverging points of departure form the basis of our research approach.

First, a new technology like wind power is confronted with the established centralised energy infrastructure and the corresponding institutions (rules, values and norms within the conventional energy system). Second, there is the political-institutional dimension. Implementation of wind power can be regarded as an example of ecological modernisation, i.e. as a process that also involves political modernisation. A third starting point relates to the 'gap' between the overall positive public attitude towards wind power and the behaviour regarding specific projects (opposition). Local case studies show us that participation of stakeholders helps to achieve successful implementation of wind projects. This concerns both participation in planning and decision making around a project, and financial participation in the project. Both have a positive effect on the local supportive basis for the project. These findings are an important starting point for our research.

Existing international comparative studies on wind power developments pay little or no attention to the conditions that affect local investment decisions, siting processes and social acceptance. In this international comparison we aim at relating the broader institutional context to conditions at the local level of implementation. This is the level where decisions about investments and about building wind projects are taken and where activities concerning the realisation of a wind project take place. The manner in which decision-making is organised at this level of implementation affects local investments, siting and social acceptance. The municipal governmental level is relevant as far the formal decision-making is concerned. The outcomes of all local decision-making processes eventually make up the aggregated installed capacity level at national or state level. Aggregated outcomes are strongly related to local processes where decisions are taken about the placement of and investments in wind turbines.

In order to enhance our understanding of the implementation of wind power in society we focused on the extent to which wind power has become institutionalised as a result of learning processes and new practices. This is what we call institutional capacity building for the implementation of wind power. The central question was: How can we explain the diverging outcomes of wind power implementation with reference to institutional capacity building?

Theoretical approach

Our approach is based on notions from historical institutionalism. Our interest concerns how historically evolved patterns of behaviour and organisation have affected developments in the implementation of wind power. Institutions are defined as rules, patterns or procedures that structure behaviour and interaction. We aim at gaining insight in the extent to which and the manner in which wind power applications have become embedded in the existing and changing practices, rules and routines (institutions) of society, over a period of several decades. On the basis of several institutionalist approaches for studying policy processes as well as network theory, we have decided to conceptualise the relevant elements of policy processes as follows (table I).

Table 1 Analysing policy processes: points of departure

Policy process	<ul style="list-style-type: none">• Complex interactions among a large number of actors, institutionally embedded• Long term focus, to identify changes in policies and institutional change
Comprehensive set of variables	<ul style="list-style-type: none">• Physical, situational, nature policy problem, actor orientations, institutional setting
Policy domain	<ul style="list-style-type: none">• Unit of analysis to study policy processes and change• Actors and networks of both public and private domains
Institutions	<ul style="list-style-type: none">• Enable and constrain actors and interaction• Shape expectations• Reflect unequal power distribution• Can be challenged and changed by action
Actors, action and interaction	<ul style="list-style-type: none">• Emphasis on purposive actors, intentional action and interaction• Diverse orientations (normative, interest, cognitive, interaction-oriented)• Action: affected by institutions and by actors' orientations and capabilities• Interdependence: need to cooperate to solve problems, network formation• Policy outcomes result from interaction, cooperation and conflict
Framing and learning	<ul style="list-style-type: none">• Learning through social interaction: new problem definitions, goals and instruments.• Framing: interactive, normative and argumentative

Our conceptual framework pays attention to both the multitude of institutional variables that exert influence on several levels, and the dynamic relation between institutions and actors. Figure I schematically displays the variables and relations between these variables.

The concept of institutional capacity building as depicted in figure II, focuses our attention on interaction (cooperation and conflict) and on the extent to which diverging types of actors and their knowledge have been involved in processes at different levels (from the national to the local). The aim is to inquire how actors, within the incumbent and changing institutional settings, have mobilised support for wind power implementation through interacting with other actors, in and through policy-making, project planning and implementation practices. Patterns of support mobilisation for wind power implementation over time reveal the mobilisation capacity, which is the capacity to collectively act on a given issue, the capacity to pool efforts and jointly take up problems. Institutional capacity building for wind power implementation entails the institutionalising of the capacity to learn, through open processes that offer room for diverse types of actors, knowledge resources and values

Figure I Wind power policy process

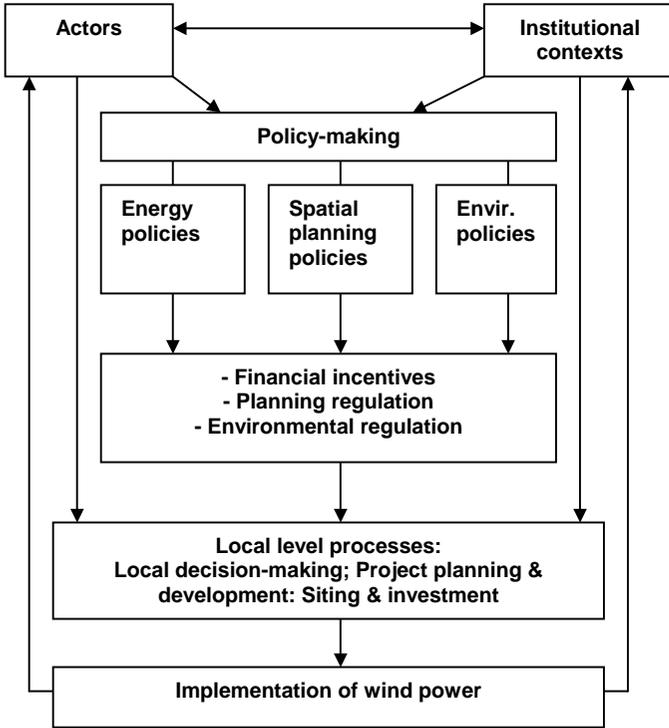
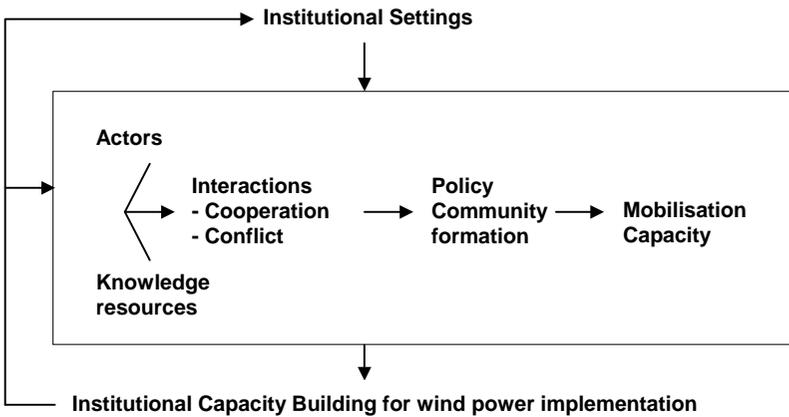


Figure II Institutional Capacity Building for wind power implementation



Method

The research method adopted is that of multiple-embedded case study research. The conclusions of the three separately conducted case studies are taken up for comparison. We have made use of different data sources and methods.

The cases show diverging results as far as their success in implementation is concerned. North Rhine-Westphalia (NRW) can be characterised as very successful, the Netherlands less so and England least. This qualification means that in NRW much more has been realised (in terms of installed capacity levels) in a much less conflictuous environment, compared to England in particular, but also in comparison to the Netherlands. Each case study starts around 1973, but the emphasis is on the period from 1990 to 2004. For NRW and England we have also addressed the broader German and British context, for instance when analysing national policies or when inquiring into the evolving of networks. Table II shows how the separate case studies have been structured.

Table II Structuring case studies

Stories on wind power and implementation:

Different perspectives on wind power developments, constructed on the basis of arguments expressed by stakeholders

Policy domains:

Energy domain:

Early developments; energy sector structure & change; liberalisation; project developers; turbine industry

Planning domain:

Planning system & change; planning policy for wind; local planning practices for wind power implementation

Environmental policy domain:

Environmental policies related to wind power; institutionalisation of environmental concern

Policy community formation:

Early formation network; consolidation; local grass roots; government efforts; mobilisation of support

Institutional capacity building:

Historical process of institutionalising capacities and relation to implementation achievements.

On the basis of interviews we have constructed stories for each case that reflect perspectives (from proponents, conditional supporters and opponents) regarding whether, how and by whom wind energy projects should be realised. Set against each other, these stories reveal the controversial issues. In the following part of our research, the stories are supplemented with a broader historical-institutional context. An inquiry is undertaken into how institutional conditions and changes in the policy domains of energy, spatial planning and environment have influenced implementation of wind power. Next, attention is paid to the formation of policy communities around the issue of wind power, again in relation to implementation achievements. We have inquired how this network has been able to mobilise support at different levels (from the local to the national level). Each case chapter concludes with a discussion on institutional capacity building for the implementation of wind power.

The comparison addresses the separate elements as depicted in table II. In addition, we have conducted a Q sort analysis that reveals perspectives, not for each individual case like the stories, but across the cases. The concluding part deals with the question of how to understand the diverging achievements in wind power implementation in the light of our analysis of institutional capacity building.

Findings

Below we briefly address the main findings that resulted from the comparison between the three cases.

Financial support system

A prerequisite for successful wind power implementation is that policies that provide financial incentives are consistent and stable over time, and that they allow profitable wind project development. An important conclusion is that the choice of financial support systems affects which actors invest and that this subsequently has consequences for local involvement (in project planning and development) as well as local acceptance.

The German feed-in tariff system involved a set payment to producers of wind-generated electricity. In addition, the energy companies were required to provide wind power producers access to the grid and to purchase their electricity. In North Rhine-Westphalia this triggered investments from private actors (individuals, cooperatives, companies) while it kept the established energy companies at a distance. From the early nineties onwards, a diversity of actors got involved in the development of wind projects.

In the Netherlands and England, policies in the early nineties were much less inviting towards private actors. There, the energy companies soon became the main project developers, which negatively affected local conditions for project planning and implementation. Residents felt they had to put up with the burdens (e.g. landscape impact) while the big companies were making profits with their wind projects. From early onwards, local opposition against wind energy projects became a problem. In NRW, on the contrary, it was often the residents themselves that participated in the development of wind projects, especially in the early years. In the course of the nineties, however, as a result of the professionalisation of the wind energy sector, fewer projects were developed in local (co-)ownership. Nevertheless, by the time local opposition became significant in NRW, an impressive installed capacity level had already been reached.

The feed-in tariff system has encouraged local ownership, which in turn has had a positive influence on local social acceptance and eventually on implementation too. This can be seen not only in NRW, but also in the Netherlands, where a feed-in tariff system was introduced in 2002. Projects in local ownership (developed by farmers mainly) have increased in number and implementation has accelerated enormously. The quota obligation system in England (2002), where it is not the price but the amount of electricity to be produced by wind energy that is set by government, has so far not resulted in an increase in implementation comparable to that in the Netherlands in recent years.

Role of the energy sector

It is important for a new energy technology to be awarded political priority, because it is being introduced in the partly unsuitable and often hostile institutional environment of the established conventional energy system. The comparison showed us that when the energy sector dominates policymaking, this is not conducive to wind power developments. In addition, it is by no means self-evident that energy companies are best equipped to successfully develop wind projects. The successful implementation of wind power in NRW relates to the fact that the energy companies were kept at bay in the early years, that they had no dominant influence on policy for renewables, and that they – unlike in the Netherlands and England – they were forced to provide access to their grid to other producers against reasonable to favourable conditions.

Mobilisation capacity

In NRW, wind power developments originated from a grass-roots environmental and anti-nuclear movement. Many citizens participated in

the development of wind projects at the local level. In that manner, throughout the years, wind power became embedded as an environmentally preferable energy source, as a new economic sector, and as a socially acceptable alternative to conventional energy generation. The historical developments in the other two cases lack a similar embedding. The policy community around the issue of wind power in NRW developed bottom-upwards and was subsequently able to mobilise support at regional, state, and federal level. In England, the energy sector dominated the policy community. This community lacks a connection to the local level of implementation and has mainly focused on national lobbying. In the Netherlands, the policy community was fragmented, as a result of conflicts among various actors active in wind power developments (turbine manufacturers, energy companies and independent developers).

The manner in which actors that are active in wind energy develop the capacities to cooperate, and to organise and mobilise support, is vital to the success of wind power implementation in the longer run. This is not only about support mobilisation at the level of national policy and politics, but also at the level of implementation.

The role of government moreover is important in facilitating cooperation. Wind power involves and affects a multitude of interests, policy processes should address all of these. This means that not only project developers, but also environmental, nature-and landscape protection organisations and other interests should be involved in policy processes. This can help in preventing conflict and creating commitment, and often it will result in qualitatively better plans as well.

Established landscape protection traditions can impede wind power implementation, as we saw in England. Local traditions in energy-related activism, in the form of locally owned wind projects, can enhance social acceptance and implementation, as we saw in NRW and to a lesser degree in the Netherlands.

The local planning context

Decisions on wind power implementation are in each case taken at the local level. Local planning has been losing powers to the national level in all three cases. A general trend in planning has been to increasingly prioritise the ‘common good’ (e.g. fighting climate change with wind projects) over and above local concerns (e.g. the landscape impact of wind projects).

In none of our cases have collaborative practices (beyond formal consultation) become institutionalised in planning. We did see, however, that inclusive approaches can also result from local ownership and from

project development by actors that are rooted in the local community - as we saw in NRW - or when project developers find it important to involve local stakeholders in the making of a plan.

An important difference between the three cases was that the German law obliges municipalities to take a pro-active decision about the placement of wind turbines. Both the Q sort and the stories showed that the most controversial issues concern landscape values, participation in project planning, financial participation, the role of local authorities and the extent to which motivations behind opposition are taken seriously. All these issues become manifest at the local level of implementation, in the form of discussions and/or conflict. A pro-active role of local authorities makes it possible to consider all these issues. Because wind power implementation takes place at the local level, where it touches on a multitude of interests, and because this is the level where local opposition against wind projects rises, it is unlikely that shifting the decision-making competence to a higher administrative level will result in a decrease in local conflicts around project planning and implementation.

In each case, but most of all in England, both conditional supporters as well as opponents of wind energy criticised the lack of participation, the absence of local benefits from wind projects, and the brushing aside of local opposition as illegitimate or unfounded. Our study showed that in diverging degrees, policy makers as well as project developers have hardly inquired into the motivations behind local opposition.

A participative approach creates room for discussion on the most important aspects of a plan, namely the location and the size of the project. In response to such a discussion, a plan can be adapted. Conditional supporters and sceptics, who have been able to exert influence in this manner, will be less inclined to become part of a network of opponents. Of course, a participative approach is not always a remedy to solve conflicts and arrive at implementation. In case local opposing networks are already strongly established, a participative approach is unlikely to take away this opposition.

Institutional capacity building

The concept of institutional capacity building helped us to qualify the historical processes around the implementation of wind power. Institutional capacity building partly explains the diverging achievements in implementation. Local investment decisions, placement processes and social acceptance are influenced by a complex set of interdependent variables that are rooted in institutional arrangements. Case-specific

historical characteristics like the presence of grass roots in landscape traditions and the existence of local energy activism can affect the path of developments; this is all the more likely if concerns of these networks have become institutionalised in politics and practices around wind power implementation.

To improve implementation of wind power and to decrease or prevent conflicts, the emphasis that many policy makers and project developers place on production capacity should make room for an approach with more attention for the interrelated institutional conditions that affect implementation and with more attention for the importance of participation and social involvement in project planning and implementation.

An overarching question is how to shape environmental reform, in such a way that the reforms are institutionalised at the level of economic, social, cultural and political life. As for wind power, the discussions should be placed in the light of environmental concern, future energy supply and use, land-use planning, spatial planning, agriculture, countryside values, rural local regeneration and nature and landscape protection.

If we are to continue the road towards a sustainable energy economy, we will increasingly be confronted with resource-dependent, decentralised, and location-dependent applications. Social acceptance relates to a commitment at various levels in society and to a variety of reasons and motivations to support or oppose a development. In the case of wind power we need to consider how environmental, economic and landscape interests are relevant at the level of implementation.

Instead of an approach that poses wind power implementation as a public interest while dismissing opposition as being based on 'emotional arguments', it would be more useful to implement wind power in a manner that is regarded as legitimate by relevant stakeholders. This would be about legitimacy in terms of process and in terms of sharing costs and benefits. Such a strategy would entail the institutionalising of participation in project planning and local decision-making (democratic legitimacy), so that there would be room for deliberation and negotiation on the costs and benefits of wind power implementation. Together with an approach that encourages local ownership (legitimacy through cost-benefit sharing), it is more likely to result in successful implementation than a top-down approach of wind power implementation, because it creates a basis for social acceptance of and commitment to wind energy.