Finding the right place

The story about an offshore wind power project

BY

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Preface

In May 2003, I completed a study on the wind power industry in Sweden (Rönnborg 2003). The purpose of the study was to establish a more comprehensive knowledge of the wind power industry and the various actors involved. The study paid special attention to the current market structure focusing on turbine resellers and project developers with the objectives of analyzing their economic conditions, the network between these actors and the level of competition between the suppliers. The underlying question was whether the slow progress of wind power in Sweden was brought about by weak competition among suppliers, for example causing to high prices for equipment and turnkey projects. The results of the study showed that the supplier-market was highly concentrated that competition was weak that profitability among these actors was low; and, indeed, that the demand for wind turbines was poor. In spite of the poor demand, project developers and turbine suppliers tended to be hopeful about the future and it seems as that, after all, they did consider the Swedish market as a potential growth market, mostly because of good wind conditions and the latest political objectives, which, to be accomplished, would entail heavy investments. Many project developers and turbine suppliers described the Swedish offshore market as a potential growth market. However, because such projects by nature are significantly larger and thus more costly than the projects built so far, developers and turbine suppliers claimed they had to attract new groups of investors, such as the electricity industry or other financially viable actors. Several suppliers and project developers with whom I had contact identified the electricity producers as key actors in the process of expanding wind power production. In addition, they blamed the lack of demand on weak and short-termed policies, making it difficult to prove that wind power was a business case. There seemed to be an implicit assumption that wind power suffered from investment restraints caused by the results of bad policies in combination with deficient assessments. This directed my interest towards the demand side of the market, particularly towards the electricity producers and their propensity to undertake investments in wind power as they have been identified as key actors and are expected to undertake practical action to reach the political objectives. One of the interviewees stated, *"Once the electricity producers start buying wind turbines the market will expand"*. However, there seemed to be too little research on how such actors actually make evaluations on wind power and what factors influence the decisions they make. In fact, this is the trigger for the study at hand.

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1 Setting the scene

"We are living through a new industrial revolution. Many of the emerging technologies are cleaner and more resource efficient than those they are replacing. The problem is that many of these new technologies are not replacing the old technologies because of investment restraints."

John Elkington

The past thirty years have been characterized by a sometimes-intense debate regarding the technology utilized for producing electricity power, and the need to create an energy system[1] based on environmental friendly, or rather sustainable, energy resources. In fact, all over society the awareness of man-related environmental impact has grown considerably, e.g. concerning global warming and air pollution. Though man-related environmental impact incorporates wider issues than merely the production of electricity, the technology used for producing electricity is of major concern since electricity is a most important and widely used energy resource.

At present, the electricity industry is changing. Two parallel processes, one of transforming production technology and the other of market reformation, are reshaping the operating conditions for the industry. The Swedish parliament has committed the country to a strong development of renewable energy and the present political goal is to increase renewable electricity production with an additional 10 TWh by the year 2010[2]. Concurrently, the market reformation process launched in 1996 has restructured the electricity market, from monopoly concessions to a competitive market, which led to a disengagement of public agents' operational responsibility for the energy sector. This entails consequences for the transformation process in such that the market reformation causes a partly transferred responsibility from public agents to the market actors. Thus, the reformed market creates a special challenge for the process of transforming production technologies, which is sententiously expressed by the chairman of the Swedish Wind Power Association in Jackson (2005) *"The market's main responsibility is not to take responsibility for society, the market's*

[1] An energy system is defined as a socio-technological system constituted by: 1) technology utilized for production, e.g. solar, hydro, wind, nuclear, 2) actors, e.g. institutions and organizations constructing, building and utilizing the technology, and 3) the institutional and economical framework which they are embedded in (Åstrand and Neij 2003).

[2] 10 TWh is roughly 7 % of all electricity produced in Sweden (Energimyndigheten, 2003).

main responsibility is to make money". Nevertheless, public agents, i.e. politicians, expect the electricity industry to take a leading part in the further deployment of renewable energy; putting the electricity producers at the heart of this process.

It seems we are dealing with two separate, however intertwined, problems 1) the need to enhance renewable energy production, which entails utilizing new technologies and 2) the confidence in private actors, which, in this context, means entrusting a new kind of logic – the one of the market. Accordingly, it becomes interestingly scrutinizing how market actors consider investment opportunities in renewable energy technologies.

1.1 Wind power a renewable technology

The Swedish government emphasizes that wind power will play an important part in transforming the energy system (Näringsdepartementet 2002). This idea of expecting wind power to be an important future energy resource seems to be shared amongst other countries (Morthorst 1999). For example, within the EU, it is anticipated that wind power will deliver half of the appointed renewables target for 2010 (Jacob 2005). This would make wind power the largest energy resource when increasing renewable electricity production out of which wind power facilities located offshore are believed to represent the vast part of the anticipated increase (BWEA 2004). The current trend is clearly offshore projects (EWEA 2003). A Greenpeace report (Greenpeace 2004) supports the potential of exploiting wind resources offshore. In fact, the report states that, if extensive constructions are undertaken, offshore wind power could represent the lion's share of all electricity production in Europe by 2020.

As within many other EU countries, the potential from offshore production facilities in Sweden is believed to be substantial and the Greenpeace report (ibid), indicates offshore production options in Sweden as high as 47 TWh by 2020. Thus, the potential of offshore wind power is significant and can provide a substantial contribution in the transformation process, also emphasized by the Swedish government (Näringsdepartementet 2002). According to the Swedish Government, attaining increased wind power utilization is dependent on investments by market actors such as electricity producers. Therefore, the Government stresses the importance of creating adequate physical locations in combination with acceptable and long-term economic conditions. Accordingly, the Swedish government assigned the municipalities and County Administrative Boards a planning target for wind power, stating they should make plans for additional wind power production of 10 TWh by 2015. Furthermore, in 2003, the government launched a new inducement policies system.

This new system, based on so-called 'green certificates', is a market-based solution where producers receive tradable certificates for each kWh produced and consumers, under quota obligations, are forced to buy the certificates (Näringsdepartementet 2002). The new system detaches the inducement system from the state capital budget, and is believed to boost demand for wind power as well as other renewable energy sources.

These recent efforts to increase wind power production are nothing new however and follow the same patterns since the beginning of the 1990's, which has been inducement of 'real-life' constructions through different economic supportive measures. In fact, there have been several efforts to increase utilization of wind power in Sweden during the past twenty years, e.g. construction of MW-size windmills in the 1980's and different investment subsidiary programs aiming to stimulate demand, which has cost hundreds of millions of the Swedish taxpayers' money. In spite of these efforts, however, concrete results are few[3] and when compared to other European markets, e.g. Germany and Denmark (markets with similar wind conditions as in Sweden) wind power expansion in Sweden is significantly poorer[4]. The conclusion of previous studies (Carlman 1990; Bergek 2002; Rönnborg 2003; Kahn 2004; Åstrand and Neij 2004; Bengtsson and Corvellec 2005; Hellsmark 2005) is that the expansion of wind power in Sweden is hindered by different forces and structures, negatively affecting demand for wind power technology. Notably are the lack of industrial commitment to development of the technology (Bergek 2002); absence of comprehensive long-term political strategy and non-continuity in policies (Åstrand and Neij 2004); unclear directives to local authorities regarding planning issues (Kahn 2004); difficulties in apprehending necessary permits (Rönnborg 2003); uncertainty embedded in the legal framework (Bengtsson and Corvellec 2005) and poor demand from the electricity producers (Carlman 1990; Bergek 2002; Rönnborg 2003). Nevertheless, the electricity producers appear crucial in the further deployment of wind power. Bergek (2002) identified the electricity producers as key actors in the ongoing transformation process claiming *"they influence the demand not only directly by buying the equipment but also indirectly by blocking the creation of legitimacy and the recognition of potential for growth"* (Paper II, p.19).

[3] Installed capacity in Sweden in the beginning of 2005 was 442 MW and out of the 150 TWh electricity produced annually in Sweden, wind power produced not as much as one percent (Wind Power Monthly, Vol.21, Issue 7, The Windicator, pp. 65-66).

[4] Germany has the greatest amount of installed capacity in the world (12000 MW by the end of 2002) and Danish wind power supplies 16 % of the electricity produced (IEA Wind Energy Annual Report 2002).

The importance of the electricity producers is however nothing new. Ever since politicians started discussing wind power as a production resource the electricity producers have been regarded as important actors expanding the utilization of wind power, e.g. the MW-size wind power projects in the 1980's were lead by the then two major electricity producers (Carlman 1990). It was believed that developing two different MW-size prototypes would create a 'competitive technological environment' and after thorough evaluation, the most efficient technology would then be commercialized. However, in reality the electricity producers had little demand for wind power since the deployment of nuclear power (in combination with existent hydro power) provided the electricity producers with all the production capacity they needed (Bergek 2002). One wonders of the likelihood that the electricity producers are more interested in commercial wind power ventures today is greater than they were twenty years ago; especially since the market has undergone significant changes during the last ten years.

Research on the electricity industry and the recently reformed electricity market (Midttun and Summerton 1998; Sandoff 2002; Bergmasth and Strid 2004; Svahn 2004) does not precisely provide illusions that there will be any increased demand for wind power. At the time for the market reformation, the market was characterized by overcapacity which triggered an optimization of production resources leading to the dismantling of several production facilities (Midttun and Summerton 1998). This implied that there was little demand for any new production facilities. Furthermore, the Swedish electricity producers acquired foreign electricity producers since the Swedish market had reached a saturation point (Sandoff 2002), entailing the reformation redirected capital away from the transformation of domestic production resources. Most importantly however, the market reformation altered the electricity producers main objective from being utility-providing into making as much money as possible (Bergmasth and Strid 2004; Svahn 2004), implying that investments in additional production resources were counterproductive to that objective since the industry was characterized by overcapacity. Making matters worse, Svahn (2004) identified deficiencies in the material used by energy producers when evaluating their businesses and that these deficiencies obstructed investments in new production technologies since such investments, compared to existing facilities, must generate equal revenues through higher market prices. In conclusion, these findings do not precisely appear as favorable for the further deployment of wind power in Sweden. Nevertheless, politicians expect industry actors to take leading responsibility in fulfilling their objectives.

Interestingly though, during the last years, there has been some increased interest for wind power. For example, two of the major electricity producers in Sweden have invested in wind power projects and integrated wind power developing companies within their organizations.[5] Thus, it may appear as the concrete political planning objective, the political focus on the need for adequate physical locations and the launching of a 'robust' market-based inducement system has created better conditions for the further integration of wind power in Sweden and actual fulfillment of the political goals. At least if one considers the formerly reluctant electricity producers' newly awakened interest for wind power as a proxy for increased investments in wind power projects, which public agents can take as a pretext for the effectiveness of the measures taken so far. Scratching the surface however, a somewhat different picture appears. The process of applying and achieving the necessary permissions is a long, laborious, costly and highly uncertain process. This might constrain the interest for undertaking wind power projects and impede the tremendous expansion the political objective entails.

1.2 A recent example

One example of an electricity producer making an effort to contribute to the Swedish political wind power objective is the municipally owned energy producer Göteborg Energi AB. In May 2001, the Board of Directors decided to proceed with the process of applying for a 300 MW wind power production facility constituted by some 60 wind turbines, located at the shoal bank Fladen in the Kattegatt Sea. If operational, the facility would have produced as much as 1 TWh annually, approximately 10 percent of the governmental national planning target for wind power and approximately 20 percent of the annual electricity consumption in the city of Göteborg. When presenting the project, Göteborg Energi described that they for some years had investigated different locations on the Swedish west coast. Thus, they claimed their application was the result of an internal evaluation process in which they had dismissed several optional sites, concluding Fladen was the best location. Consequently, they applied for permissions and pushed the project through a four-year long application process. In their formal application, they presented rationally based arguments on why Fladen was the optimal location, presenting it as a profitable project, from a business administrative as well as socio-economical perspective, and claimed the project was a substantial contribution to the political

[5] In 2004 the State owned electricity producer Vattenfall bought the offshore project Lillgrund from the wind power developer Eurowind, planned to be erected in 2006. In addition, Vattenfall is currently prospecting another offshore project on Kriegers Flak. (www.vattenfall.se/lillgrund) E.On (former Sydkraft) acquired the wind power developer Airicole in 2004, including the permissions to construct the offshore project Utgrunden II located in Kalmarsund. (www.eon.se)

objectives. They concluded their argumentation for the suggested location using a scoring model developed by the Swedish Energy Agency, in which they compared the Fladen project with seven different sites. The model provided the conclusion that Fladen was the most favorable location. In spite of these persuasive arguments, the Regional Environmental Court in 2003 and finally the Swedish government in 2004 rejected their application.

This project represents the first example of a large-scale offshore wind power project initiated by an electricity producer, identified as an important actor in the deployment of wind power in Sweden. Furthermore, politicians, NGOs, and industry representatives avow this type of project will represent a vast majority of the additional production capacity needed to reach the political objective. In spite of the fact that the highest legal instance, the Regional Environmental Court, in their ruling [6] concluded that *from an electricity production perspective the suggested location was the most favorable on the Swedish west coast* – (emphasis added) they rejected the project application on the basis that the project could be feared to cause damages or drawbacks on the natural values at Fladen. It was furthermore concluded that the operations of this particular facility would, 1) violate the environmental legislation concerning so-called Natura 2000 areas, 2) contradict conditions regarding national economic authorization and 3) infringe the municipal veto (Vänersborgs Tingsrätt 2003). The Swedish Government, in their ruling[7], declared that the principal rule of the environmental legislation hinders governmental authorization of projects violating environmental legislation if the municipals involved reject the project. Therefore, the government rejected the application. Thus, in this particular case, it appears that safeguarding other factors was more important than the expansion of wind power.

Since the electricity producers are in the electricity producing business with the objective of making as much money as possible, while at the same time under the pressure of delivering electricity to consumers *"at the lowest possible prices"* (Näringsdepartementet 1994) (p. 1), it seems reasonable they pursue building projects corresponding to such requisites as presented by Göteborg Energi. If such actors cannot undertake projects, from an electricity production perspective evaluated as most favorable, what projects will then account for the extensive capacity increase the political objective entails? It appears that the electricity producers are exposed to quite inconsistent demands and that the process of evaluating such project

[6] Vänersborgs Tingsrätt, Yttrande 2003-12-22, Mål nr M 203-02
[7] Regeringsbeslut 23, 2004-10-07, M2003/4078/F/M, Miljödepartementet, "Tillåtlighetsprövning enligt 17 kap. miljöbalken för vindkraft på Fladen, Kungsbacka och Varbergs kommuner" (p.2)

applications may have built-in ambiguities. This leads us to issues regarding the processes of making decisions and evaluations of wind power projects.

1.3 Problem discussion

The purpose of reforming the electricity market was to *"accomplish a more rational usage of production resources and secure flexible terms of delivery to consumers at the lowest possible price"* (Näringsdepartementet 1994)(p.1). According to Self (1993), such reformation processes are the result of a changed political attitude on market-based solutions for public utilities; resting on the neoliberal paradigm that governments and public agents should do less, e.g. privatize public utilities and public service where practicable and reform their own operations according to the concept of competition and efficiency, embedded in the framework of the market economy. In parallel, the government has set out policies to reform production technologies and the long-term political objective is to secure the procurement of electricity through an energy system *"based on durable, preferably domestic and renewable energy sources"* where *"nuclear power shall be replaced through streamlining electricity usage and conversion into renewable and environmentally acceptable production technologies"* (Näringsdepartementet 2002)(p.15). The same policies document further states that *"the transformation process must proceed in a way not entailing negative effects neither on the price for electricity, the supply of electricity, the power-balance, nor on the environment or climate. In light of this it is important to provide favorable conditions for electricity production as well as investments in production capacity and efficiency measures"* (ibid. p. 26). This underlines how important politicians regard the electricity production system and points at the fact that the creation of 'the energy system of the future' is still regarded a concern for public agents though the very same public agents have assigned the process of realizing their policies to private companies. As Corvellec and Risberg (2005) put it *"Neoliberalism lets matters of public policy increasingly become matters of corporate strategies"* (p. 3), however, in spite of these neoliberal tendencies, the policy makers have not entirely released their hold on how the transformation process shall evolve. In that sense, policy makers may be considered to act as some sort of 'market planners'; creating a framework within which the market actors shall perform the policies and this 'new' and supposedly 'better' energy system shall evolve. This implies that it is not entirely up to the market actors to decide on what, where and how to perform concrete measures used to carry through the political objectives.

When scrutinizing this framework, it appears policy makers have a quite modernistic and rationalistic perspective on how their policies will be carried through, at least if the concrete political actions of formulating a planning target for wind power and the construction of a new inducement system is taken as a proxy for how planners at administrative and regulatory agencies and the market actors are believed to conduct their operations. The government's energy policy proposition (Näringsdepartementet 2002) establishes *"a national planning target for wind power to a yearly production capacity of 10 TWh until the year 2015"* (p. 99) . The proposition furthermore states, *"The government estimates that there are many areas representing good wind conditions in Sweden, implying a theoretically high potential for wind power though a number of factors circumcise the practical expansion. The economical and physical requirements of such facilities must be in balance with a number of different factors, e.g. natural and cultural interests, alternative usage of land and water resources and other activities affected by any establishment"* (ibid p. 100). This can be interpreted as a form of expectation on rational and objective sets of evaluative tools, in this case represented by the legislative framework, providing the opportunity to measure and weigh the differing special interests against one another. This presupposes rational and objective actors, possessing the capacity to conduct evaluation of these differing special interests and apply the results of these evaluations to some form of function, guiding their actions and choices. In fact, the Swedish Government assigned The National Board of Housing (Boverket), in association with Swedish Environmental Protections Agency (Naturvårdsverket), The Swedish Energy Agency (Energimyndigheten) and The National Heritage Board (Riksantikvarieämbetet), to develop a manual, directed towards municipalities and other regulating authorities, handling such evaluation issues (Boverket 2003). Thus, all these special interests, among others, have to be handled, evaluated and settled; and balanced with other economic interests, e.g. those pursued by electricity producers.

A diversity of different laws regulates the construction and siting of onshore as well as offshore wind power, making it a complex procedure. To construct an offshore facility applicants must acquire permissions according to environmental legislation (Miljöbalken SFS 1998:808), electricity legislation (Ellagen SFS 1997:857), planning and building legislation (Plan- och bygglagen SFS 1987:10) and must also receive permission to use the water area (rådighet)(Elforsk 2001). According to Bengtsson and Corvellec (2005) environmental legislation, and planning and building legislation are the most important legislations when applications are to be examined. For example, the environmental legislation regulates how

water resources can be utilized (SFS 1998:808, Section 11); with the stipulation that constructions affecting water resources can be undertaken if and only if its benefits, from a public as well as private utility perspective, exceeds the costs, damages and inconveniences caused by the construction (SFS 1998:808, 11 § 1). Thus, any offshore wind power project is legally required to comply with some kind of yield requirements, both of business administrative as well as socio-economic character. Consequently, as legislation stipulates that the economic trade-off of a project can be, and has in fact been, calculated and evaluated it impedes economic evaluation as part of the examination and judgment on such projects.

Such economic evaluation processes concern numerous technical properties and situational prerequisites affecting the operating conditions and profitability options of the individual project. For example, concerning offshore projects, such technical prerequisites relate to how wind resources at a certain location affect the estimated output of the facility, how water depths at the site affect the project's technical feasibility and costs, how sea bottom conditions affect possible technical solutions as it affects foundation construction options and therefore the costs and, not the least, how conditions of the electricity grid in the vicinity affect costs associated to grid connections (Wizelius 2002). The economic evaluation criteria further implies that some meaningful way of interpreting, quantifying, assessing and evaluating such variables does exist.

Concerning the inducement system, the purpose is to create what the government refers to as *"stable rules of the game, valid for a long period; putting investments into practice. Concurrently, the system shall stimulate and contribute to a cost-efficiency process on production, which becomes a consequence when there is competition between different renewable technologies. In order to gain public acceptance, maintain the competitiveness of Swedish industry and achieve increased competitiveness for renewable energy sources the costs of the system must also be moderated"* (Näringsdepartementet 2002)(p. 88). Likewise, it appears as this new system presupposes rational actors, which possess the ability of conducting objective and calculable evaluations between different technologies. When evolving the framework within which the accomplishment of the political objectives shall prevail, it appears as if the policy makers picture the process as rational and objective.

By establishing these concrete measures it appears as if policy makers assume they have created the framework necessary for the fulfillment of their objectives, the rest is up to the market actors' determination. However, as indicated by the brief description of the Fladen

project above and in prior research, e.g. Corvellec and Risberg (2005), the realization of any wind power project is a hazardous and uncertain activity and entails the interaction between multitudes of different actors. For example, when preparing the applications for large-scale wind power projects[8], besides making thorough technical and economical internal evaluations of the suggested project, the applying organization must interact with numerous public agents such as municipalities, county administrative boards, regulating authorities, e.g. the Swedish Environmental Protection Agency, Swedish Armed Forces, Swedish Civil Aviation Authority and the Environmental Court; gaining the approval from all these different actors. Finally, after all of this interaction, consent from the Swedish Government is an absolute requisite for receiving permissions. Thus, the question of where to locate wind power sites is a process involving several different organizations (even individuals) representing a diversity of different goals, interests and opinions, which they for different reasons try to pursue.

Facilities and infrastructures (such as wind power), although allegedly contributing to a better society, may have considerable impact on their surrounding environment and nearby communities and there may be many different interpretations of the project's impact and the project's legitimacy where experts and stakeholders do not seldom disagree on what the negative effects of a certain project are and how such effects should be regulated (Boholm and Löfstedt 2004). In fact, even the government recognizes that *"the possibility of receiving necessary permissions in accordance with prevailing laws, where public acceptance is of importance, chiefly affects the deployment of wind power"* (Näringsdepartementet 2002)(p.87). Nevertheless, as the electricity market is reformed into a competitive market, the further deployment of wind power for the most part appears to lie in the hands of the market actors, who, acting in a process depicted as rational objective and goal directed, are believed to realize concrete investment opportunities; thereby fulfilling political objectives. In fact, the political objective can be interpreted as a political exhortation directed towards the market actors: Find the right place.

However, when it comes to the realization of concrete investment opportunities, which in contrast to a depicted rational and objective process has instead been characterized as a highly hazardous and uncertain process, interesting questions arise such as, how much real authority these entrusted market actors actually possess and how this supposedly rational objective and goal-directed evaluation process actually takes place in real life.

[8] Large scale projects are here referred to as projects of 10 MW or more as such projects are required governmental authorization

1.4 Purpose and research questions

The purpose of this study is to elucidate the application process from the perspective of an individual electricity producer. By describing and analyzing how such an actor handles this sort of application process, the study seeks to provide knowledge on the logic, alternatively, illogic of such processes; scrutinizing the supposedly rational and objective assessment and evaluation of wind power projects. By studying the Fladen project and applying the perspective of Göteborg Energi, this study seeks to answer the following questions:

1. What characterized their decision-making process?
2. What factors affected the choice of location of the project and how were they evaluated?
3. What were the reasons for undertaking the project?

Lacking knowledge on how electricity producers actually make decisions and evaluate wind power projects motivates this study because, as the deployment of wind power appears dependent on such actors' future investments, it becomes important to understand how they handle such processes. As described, the Fladen project was the first Swedish large-scale offshore project initiated by an electricity producer; therefore making it very interesting to investigate. Clearly, the project is unique in its characteristics – like all projects – however, as it is quite instructive, universally interesting. Furthermore, the case study represents the first study on how electricity producers handle wind power investments. Accordingly, this case study is of particular interest for all interested in wind power development; however, at the same time, also of general interest for those interested in decision processes and those interested in the development of infrastructure projects.

1.5 Outline of the study

Chapter 2 describes the methodology of the study. Chapter 3 covers the study's theoretical point of departure. Chapter 4 frames the contextual setting and Chapter 5 provides a detailed description of the Fladen project. Chapter 6 presents the analysis and finally Chapter 7 provides the conclusions of the study and discussion on future research.

2 Methodology

"Natural life we explain, social life we understand"

Wilhelm Dilthey

This chapter outlines the research methodology of the study at hand by placing the research questions in a scientific context and describing the research method.

2.1 Methodological stance

The aim of the study is to understand this case; focusing on *what, how and why* something actually took place. By accepting the fact that humans, social systems and human artifacts, constitute my field of research it is my strongest belief that the world cannot be represented by one single truth. Still, studying people's perceptions of the world, of which they are a part of, can reveal interesting insights about it and the people that constitute it. How individuals understand the world is approached from the framework of an organizational decision-making process. Since the objective is to understand how a process evolves within an organization, the study addresses the underlying reasons, e.g. certain events, within and outside the decision-making entity, causing different courses of actions and affecting how the process within the organization develops. Blomquist and Jacobsson (2002) argue that it is important to understand decisions in a historic context. Projects tend to change over time, possible solutions come and go (Latour 1996; Boholm 2005) as well as those involved in the process. Therefore, how people involved in a process actually understand something cannot be exposed by merely scratching on the surface. Instead, it means asking detailed questions about how process participants perceive the process.

Approach

In discussing scientific methods (Alvesson and Sköldberg 1994; Eriksson and Widersheim-Paul 1997; Jacobsen 2002) a clear distinction between inductive and deductive approaches can be seen. Booth approaches are open to criticism. The inductive approach because it assumes the 'real world' can be approached with a completely open mind, not affected by any previous knowledge or experiences. The deductive approach, because it presupposes theoretical assumptions not tested on the real world, can be accused of producing limited information bearing the stamp of self-fulfilling prophesies (Jacobsen 2002). If this study were to be categorized, I would say that it seems to be both inductive and deductive. It is inductive

since its point of origin is within an empirical context although I disagree with the strict inductive view where a researcher is like a 'tabula rasa' when confronting the empirical world studied. If this was the case, a just question that arises is how one is supposed to analyze an empirical material without using a certain frame of knowledge? Furthermore, the purpose of the study differs from the classic inductive perspective, as it is not directed towards establishing *new theory;* instead, it is about understanding *what, how and why*. Indeed, I agree with Säljö (2000) who argues that in order to understand something one must become familiar with the rules of interpreting. Thus, the study is in a sense deductive, because I, as a researcher, have certain theoretical conceptions about reality, developed before as well as during the research process. One example of this is the appliance of a theoretical framework, where the theoretical assumptions are supposed to help interpret and create meaning to the empirical data (de Vaus 2001). In that sense, theory has a supportive function in developing, enhancing and deepening the questions the study addresses. Alvesson and Sköldberg (1994) discuss abduction; a sort of mixture of induction and deduction. *"Abductions' point of departure (like induction) is in the empirical world but does not repudiate theoretical assumptions and is in that sense close to deduction"* (ibid p.42). Accordingly, theories help to understand *what, how and why*; working as a tool for achieving a more multifaceted and richer explanation of the phenomena studied, not applied with the purpose to be deductively tested. For that reason, the nature of this study is explorative where the goal is to explore as much factors as possible influencing the intra-organizational process.

Focusing on presenting such *"idiographic explanations"* (de Vaus 2001)(p. 22), a case study is a possibility to become familiar with the phenomena studied and in an iterative process expand the knowledge on the phenomena; providing the opportunity of reaching 'the bottom'. In addition, case studies have a record of accomplishment when analyzing organizational decision processes (Eriksson and Widersheim-Paul 1997; Blomquist and Jacobsson 2002).

2.2 The research process

The outline of the research process is extensive data collection covering secondary as well as primary data. Secondary data covers mostly newspaper articles, maps and sea-charts related to the project. Primary data consists of interviews with key representatives from the company, ranging from the former CEO to project leaders and other project team members, as well as other externally associated persons. Furthermore, the study embodies a far-reaching collection of internal as well as external documentation on the project varying from court

documentations on communication between stakeholders to internal documentation on calculations and evaluative material prepared for the Board of Directors. Secondary and primary data serves as providers answering *how* and *what.* Providing credible explanations in order to understand *why* and present a pluralistic analysis, thorough literature studies on a broad perspective of theories believed to provide explanatory help were undertaken.

Data collection

The data collection process was mainly sequential. Actually, I first encountered the project through the media, when reading the local newspaper Göteborgs-Posten in 2002. As I was in the process of investigating the Swedish wind power industry, I covered media in search of wind power issues throughout Sweden. In the beginning of autumn 2003, I attended a study tour in Denmark where I visited the largest wind power manufacturer in the world. Then I renewed contact with the Fladen project when I met the project leader, who also participated in the study tour. We had engaging discussions on the project, which gave rise to further interest. In November 2003, I attained the Court proceedings on the project held by the Regional Environmental Court, which took place in Varberg[9]. Thereafter, the next step consisted in collecting as much public information on the project as possible. This process started with a scan of all newspaper articles on the project using the Internet service provider Mediearkivet[10], followed by reading all relevant documentation, e.g. the official project application and all correspondence with stakeholders. Using secondary data, I tried to describe how the project had developed. I also collected all documentation from the court proceedings and studied it in combination with my own notifications from the court proceedings.

The method for collecting primary data was unstructured in-depth interviews with representatives from Göteborg Energi and other persons associated with the project. In total, I made seven interviews. As the interviews were unstructured, the respondents were not always asked the same questions. Instead, certain areas were covered using a prepared interview guide. The motive for this approach was the objective of the study, which was not to generalize but instead present a comprehensive in-depth case study. If respondents have the possibility to speak freely, it may provide more information, especially as they all had different roles in the project. As the interviewer, I followed up on interesting leads and probed

[9] I was present at the second day of the court proceedings, held in late October 2003.
[10] Mediearkivet is a media archive where all major newspapers' articles are stored. It is accessible via the WebPages of the Economic Library at Göteborg University

on topics I found relevant. Naturally, I prepared myself before the interviews by reviewing as much background information as possible. This gave me the opportunity to verify collected background data and to follow up interesting leads during the interviews. I recorded all interviews on MD[11] where after I transcribed them. Recording the interviews enabled me to focus fully on the conversation whereas the process of transcribing the interviews was a way of reflecting on the interview and once more construing what had been said. The interviews varied in length, the shortest lasted for almost an hour whereas the longest lasted for over two hours. Likewise, the interviews took place at different locations; four of them took place in the office of the respondent, two in the home of the respondent and one at a local exhibition where Göteborg Energi participated. After the completion of all interviews, I put together a number of new questions, which I addressed to the involved respondents. The interviews, as well as all other contact I had with employees at Göteborg Energi, were characterized by open-mindedness; all respondents spoke quite freely, which provided a nuanced description of the topics of my interest.

Data processing

de Vaus (2001), describe case studies as "*seeking to achieve more complex and fuller explanations of phenomena"* (p. 221). Applying a clinical case study approach based on secondary as well as primary data can therefore provide a description of *what* happened, however providing an *"interpretation of the case rather than a mirror image"* (ibid p. 225). Studying a decision-making process in retrospective can also provide knowledge on *how* such a process was undertaken; possibly applicable in other similar decision-making processes. However, it is the use of several theories, where "*theories work as typologies providing explanatory help"* (ibid p. 226), that provides a wider understanding of *why* something actually happened. Accordingly, the data collected have been processed and interpreted by applying a theoretical lens. As discussed in the first chapter, the process of expanding wind power production can be thought of as a policy driven 'business-decision' process. A process in which business organizations are supposed to carry through political objectives by making decisions about where to locate wind power facilities; legally requiring evaluation of different alternatives. Accordingly, theories on organizational decision-making and evaluation of choice can offer insight on how business organizations may proceed in such situations; provided in the next chapter.

[11] MD is a recordable MiniDisc device

3 How do decisions happen?

"Reason is and ought to be the slave of the passions."

David Hume

According to Weick (1995), the whole conception of making decisions in modern Western society is about evaluating choices, however it seems there are different understandings about how business organizations make decisions and evaluate different choices, depending on what perspective one applies. In short, however jeopardizing the accusation of making too much of a generalization, the different perceptions of decision-making boils down to two main perspectives which I, inspired by Etzioni (1964) and Rowlinson (1997), refer to as 'the normative perspective' and 'the descriptive perspective'. The normative perspective, focusing on developing techniques for how business decisions should be best made is strongly influenced by neoclassical economics and appears generally embraced as the way to make 'good decisions' in modern western society. The descriptive perspective, focusing on developing theories based on understanding how real life business decisions and choice evaluations are made, can be regarded as the contrary to the former; claiming that normative theories possess weak explanatory functions concerning how decisions are in fact made. Hence, conformity between normative theory and practical actions is rarely the case in 'real life' decision-making processes. Personally, I tend to agree with the latter perspective.

However, in order to provide a comprehensive frame of reference on what constitutes and affects organizational decision-making and organizational evaluation processes the normative theories are here treated as an introduction on how business organizations are expected to make rational decisions, based on 'sound' economic evaluations; where after contrasted with other theories established on empirical findings of 'real life' decision-making processes.

3.1 The normative perspective

The normative perspective on decision-making, emanating from 'the theory of the firm'(Coase 1937), emphasizes business organizations undertake rational decision-making processes. The theory of the firm anticipates that the firm operates on a perfectly competitive market where prices are given and the production of goods is a function of the costs of factors for production and their relative output. The single objective of the firm is to maximize firm profits; achieved by producing goods until the marginal cost of production equals the market

price of the produced goods. Furthermore, and most importantly, the theory anticipates that decision-makers have access to all relevant information, which is the most important requisite for putting them in the position of making rational decisions. Otherwise, not all relevant factors can be evaluated. In spite of the weak resemblance between decision-making a lá the theory of the firm and decision-making in real life business organizations, its hereditary notion of rationality has had strong influence on the perception of decision-making in modern Western society. It seems modern society places decision-making on equality with rationality (Jackson and Carter 2000) where the notion of risk and risk calculation have replaced the notion of fate; establishing the belief that humans shape the future (Lien 1997).

In spite of this perception, the very same future remains highly unknown which causes uncertainty and, in order to handle and cope with 'the unknown', we develop ways of handling the uncertain future and create more harmonic conditions, e.g. Lien (1997) suggested that acting rationally creates a notion of order of the unknown. In fact, it has even been suggested that handling uncertainty is one of the reasons that organizations exist (Weick 1995).

3.1.1 The rational choice model

Many techniques for planning, evaluation and budgeting are based on what is referred to as 'the classic rational decision-making model' (Sahlin-Andersson 1986) (p.25). Making decisions, the so-called *"rational man strives towards optimality"* (March and Simon 1993) (p. 158) where decision-making entails choosing among clearly specified and defined alternative courses of action; governed by predefined organizational goals. A common description of how economically rational business decisions should be made is found in Drury (1996); identifying the steps in a decision-making process as first to identifying business objectives (goals), thereafter gathering and assessing information, implementing measures to reach the objectives and finally assuring that the objectives are achieved. As we see, the point of departure as well as the finish of the process lies in the business objective. The notion seems to be that if one does not know what one wants to achieve, how can one know what to do? It is a little like when the cat replied to Alice during her famous trip in Wonderland 'if you don't know where you're going it doesn't matter what road you take'. In addition, the decision-makers need to be clear about what effects the decision will entail, prior to making the decision. Thus, one should know what road to take in order to meet the objective and what happens once the road ends; i.e. the outcome of the accomplished goal. Thompson (1967) claims *"the basic variables of decisions"* are 1) *"beliefs about cause/effect"* and 2)

"preferences regarding possible outcomes" (p. 134); leaving us with a supposition of four different decision situations, described in the figure below.

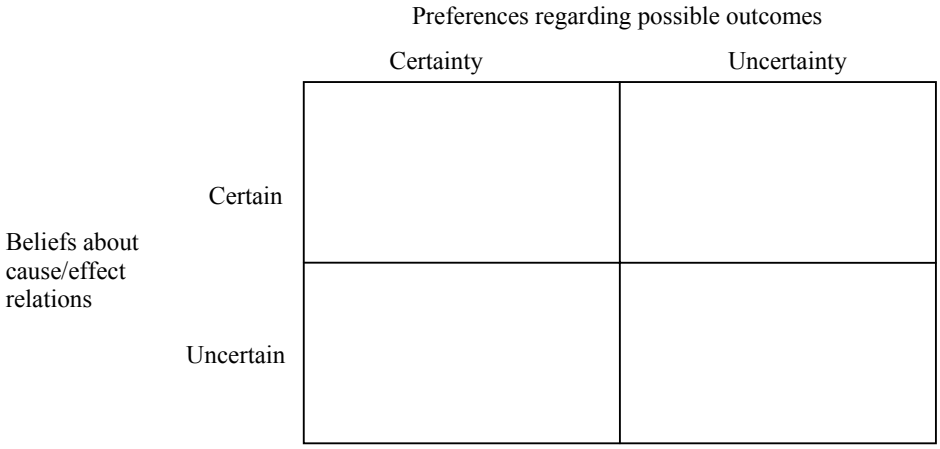


Figure 3-1 Different decision situations
Source: Thompson 1967, p.134

The rational choice model presupposes certainty regarding preferences about possible outcomes as well as certainty about cause/effect relations; thus, assuming there is such a thing as 'perfect' rationality leaves us in the upper left section of the figure. Still, even in 'rational' decision-making there are problems regarding certainty about cause/effect relations. In dealing with such uncertainties, normative decision-models, e.g. decision-trees, address the uncertainties connected to cause/effect relations, or the outcome of a certain decision, by distributing, or rather calculating, probabilities to the different outcomes. Nevertheless, the notion of certainty concerning the preferences remains fostered within the normative perspective; accordingly, we end up in the lower left section of the figure. Since the preferences concerning outcomes appear the most vital within the normative perspective, it is now time to turn our attention towards the objectives for the contemporary business organization.

For the contemporary business organizations the objective above all appears to be profitability since it is a requisite for organizational survival and proliferation (Porter 1985; Gummesson 1994; Olsson and Skärvad 1994; Drury 1996; Aaker 1998; Porter 1998; Ax, Johansson et al. 2005). In making 'optimal economic decisions', financial theory (Pike and Dobbins 1986; Copeland and Weston 1988; Ross, Westerfield et al. 1990; Brealey and Myers 2000) takes the 'profitability goal' one step further; specifying the 'maximizing shareholder value' as the

overall goal for the corporation. Financial theories have devoted special interests towards establishing decision-making maxims achieving this objective; presenting a number of different models for making financial evaluations, such as the Net Present Value (NPV)[12] method. The general rule in a decision situation is that when managers make evaluations of different courses of action, they should apt to maximize profits by undertaking all projects presenting a positive NPV and consequently rejecting those that do not. However, since most organizations are subject to scarce resources, e.g. working capital, labour skills and management time, it creates restraints of different forms. Consequently, they may not have the ability to undertake all profitable projects. Thus, when choosing among alternatives in a decision situation characterized by restrictions of any form, the alternative that best satisfies the objective of maximizing shareholder value should be undertaken, synonymous with the project showing highest NPV.

Theoretically, the rational choice model in combination with financial evaluation tools represents clear-cut directives on how business organization managers shall choose among different courses of action. Nevertheless, not all relevant factors affecting the decision-process are easily quantifiable. Furthermore, two particularly interesting questions arise 1) what shapes the beliefs about cause/effect and 2) are preferences regarding possible outcomes established ex-ante or ex-post?

3.1.2 Problems of concordance

Regarding the practice of decision-making, a number of problems have occurred which weakens the normative belief about rational decision processes and the goal-directed assumptions surrounding the normative assumptions. For example, decision-makers are not always clear about what they want to achieve (Brunsson 1998). In addition, governing by objectives have been found difficult to carry out (Rombach 1991), implying that goals may not be as central in decision-making as stipulated. Furthermore, managers evaluate few optional ways for achieving the objectives (Brunsson 1998). It has even been described that organizations first decide on what to do and thereafter produce the material to support the decision, e.g. financial calculations in order to motivate and legitimize the project (Jansson 1993; Blomquist and Jacobsson 2002); a process in direct contrast to the rational choice model. Concerning the impact of financial evaluations on decision-making, not all investments representing a positive NPV are undertaken, nor are the ones showing the highest

[12] NPV is the value today of the project-related future cash flows discounted with a hurdle rate minus today's project-related capital expenditure.

NPV always the ones chosen (Bower 1986). If the single most important goal guiding the decision-making process is to increase the monetary value of the organization these findings are puzzling and implicates that other factors than monetary considerations influence the decision-making and evaluation processes.

Several research projects have focused on the usage and implementation of generally accepted financial methods for making decisions and ranking alternative courses of action (Ackerman 1970; Söderman 1975; Bower 1986; Segelod 1986; Yard 1987; Currie 1989; Segelod 1991; Segelod 1992; Andersson and Gandemo 1993; Zaring 1999). Ackerman (1970) found that the investment process appeared to be strongly influenced by factors other than the financial framework, where the decision to support a project included a judgment of organizational opportunity for the manager, i.e. how the manager is evaluated and rewarded, and in turn, depended on what the manager felt was expected from him/her. Bower (1986) claims that managers' projections of different projects' cash flows are rarely comparable and the uncertainty that characterizes the calculus of a project varies with: 1) the type of project, 2) what business the company is in and 3) what type of manager is doing the projection. Zaring (1999), concluded that the financial evaluation models do not analyze the resource description of a company beyond the cash flows in the investment model. Currie (1989), described how coercive and irrational behavior appears within decision-making and evaluation processes and how managers, in order to get board approval for certain large-scale projects, often need to 'play the system'; meaning that they have to present pseudo spurious predictions of increased productivity by undertaking a certain course of action. This is an example of pseudo rationalistic behavior, conducted in order to justify the project from a rationalistic point of view and it strengthens the opinion that decision-making entails more than the normative perspective comprise. In addition, there is no clear-cut evidence that the application of normative decision models and extensive financial evaluations leads to better decisions in terms of profitability (Jansson 1993; Flyvbjerg 2003). This blurs the notion that organizations are involved in so-called rational decision-making processes. Instead, such empirical findings add further dimensions to decision-making and choice evaluation within organizations.

3.2 The descriptive perspective

In contrast to the normative perspective, empirical studies on 'real life' organizational decision-making processes (Cyert and March 1963; Thompson 1967; Cohen, March et al. 1972; Pettigrew 1973; Mintzberg, Raisinghani et al. 1976; Sahlin-Andersson 1986; Jansson 1993; March 1994; Simon 1997; Flyvbjerg 1998; Blomquist and Jacobsson 2002; Flyvbjerg

2003) describe a far more complex and context dependent process. For example, decision-makers, influenced by a number of factors, instead of optimization rather strive towards finding satisfactory solutions where decision makers consider alternatives sequentially rather than simultaneously. One example of how organizations make decisions is presented in the 'garbage can theory' (Cohen, March et al. 1972), where ideas and solutions, participants and actual decisions can be viewed as independent flows; meeting within the organizational decision-making process. Within the 'garbage can', the 'marriage' between a problem and its solution are more random than anticipated by the normative decision-making theory. Empirical studies also reveal that organizations often avoid the uncertainty connected to decision-making by following certain procedures and rules of thumb (Nelson and Winter 1982); however, responding on feedback rather than predicting its environment as anticipated in normative theories.

Such empirical findings imply that real life decision-making is not as straightforward as anticipated in normative decision-making theory. Making decisions and thereafter 'inventing' the rationales to support the decision more resembles a process conducted to motivate shareholders and persuade stakeholders that the outcome of a decision is in the best interest of all affected, owners as well as society. Such rationalization of projects (Flyvbjerg 1998) emphasizes that 'real life' decision-making is something other than decision-making by the book; more resembling the process of cognitive dissonance reducing behavior (Festinger 1957) or dissonance reducing buying behavior (Kotler and Armstrong 1996). In order to appear as rational or 'feel better' decision-makers post-decision rationalizes their behavior, presenting 'rational' arguments for themselves as well as to others, explaining why a certain decision or acting was superior; thereby legitimizing the decision made. Such behavior indicates that decision-makers have the tendency to fulfill what Røvik (2000) calls 'institutionalized norms', which means that they, consciously or subconsciously, undertake certain procedures, e.g. decision and evaluation processes, in accordance with what is perceived to be the legitimate approach.

3.2.1 Legitimacy an important aspect of 'real life' decision-making

Legitimacy adds another complex mechanism to decision-making processes, constantly surrounding and affecting the decision-making entity. Legitimacy is the perception of the organization's ability to incorporate norms, i.e. values and ideas, about how it should act and undertake its business. The perception of organizational legitimacy works internally as well as

externally, implying that organizational members as well as stakeholders perceive the organization's ability to cope with such norms, or rather, institutions.

Meyer and Rowan (1977) argue that contemporary society encloses a variety of different institutionalized rules where institutions become what they describe as 'rationalized myths'; guiding organizational behavior. The belief in such myths is a way of handling uncertainty and the myth *"provides a theory for understanding the world and a defense against disturbing information"* (Jönsson and Lundin 1977) (p. 164). Scott (2003) claims that *"organizations receive support and legitimacy to the extent that they conform to contemporary norms; beliefs so powerful that organizations that conform to them receive public support and confidence even in situations where no specific technical advantages are obtained"* (p.137). This implies that although the institutionalized idea is a socially created convention of what is the 'right' way of doing something it does not necessarily mean that it is perceived as a socially created convention; *"instead it is perceived as similar to an objective rule"* (Rövik 2000)(p.19). Within institutional theory rests an assumption that humans learn how to organize human activities within enduring social systems, built upon complicated forms of human cooperation, often including complex technological systems (Säljö 2000). Thus, if one regards decision-making within organizations as an institutionally dependent activity, how humans acquire the surrounding institutional patterns and, in turn, how such patterns shape the participants, only by their participation in a certain activity, and how participants utilize tools for making decisions become important explanatory factors to organizational decision-making processes. This is because decision-making entails the creation of knowledge; providing a picture of the production and reproduction of knowledge as the result of argumentation and human acting in a social context, shaped by contemporary institutional forces (Säljö 2000).

When this perspective is applied, the amalgam of the normative theories on decision-making and financial evaluation appears to function as a cognitive frame about how decision-making and evaluation processes ought to be undertaken; also affecting the perception of how they are undertaken. In that sense they guide the decision-makers', as well as the stakeholders', notion of what constitutes deliberative processes when making choices. This notion appears to constitute a frame that includes and excludes possible courses of action. For example, decision-makers in the presence of normative pressure are 'obliged' to prove that decisions are made rationally, guided by objectively constructed goals and sound financial evaluations. However, as indicated (Jansson 1993; March 1994), this is more a question of post-

legitimizing the decision process rather than following the rational models per se. Instead, such 'rational processes' are about presenting an image, complying with the norm of rational decision-making (Blomquist and Jacobsson 2002), which is the institutionalized process of how to make decisions in modern western society (March 1988).

What empirical research tells us, e.g. Brunsson (1998), is that decision-makers are not as clear about their preferences for different outcomes, and that these preferences change over time, as contemporary societal norms alter. Furthermore, beliefs about cause/effect relations are similarly uncertain, and even manipulated (Currie 1989) as to fit the preferred outcome of a desired course of action. The normative perspective strongly recognizes the assumption of certainty regarding decision-makers preferences; remember the section about Alice in Wonderland. When it comes to cause/effect relations, the normative emphasis is not as strong as in the other case. Nevertheless, when aiding such 'imperfect' rationality decision situations, substantive sets of tools for handling such uncertainties can be used, e.g. by applying probability distributions and so forth, where 'uncertainties' are statistically handled, making decision-makers feel safer. However, it is in the future the decisions of today will be evaluated, and the evaluation appears strongly affected by contemporary norms, e.g. different solutions come and go (Latour 1996), shifting as the expedient way of doing something alters. This boils down into the figure below, explicitly elucidating the dichotomy between the normative perspective and the descriptive perspective, but also the relationship between a 'theoretical world' and a 'real world'; we cannot make decisions according with the norms (or theories for that matter), nevertheless we need the norms to justify, or backup, our actions.

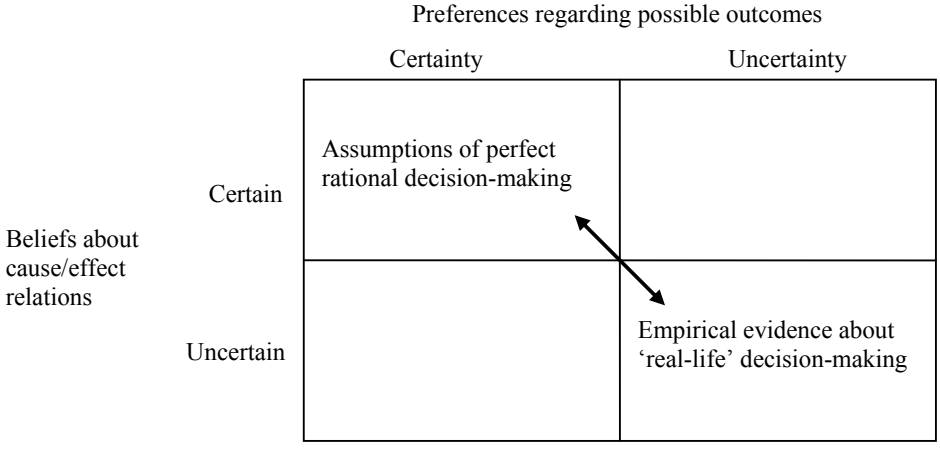


Figure 3-2 Modified model of different decision situations

The upper left section of the figure represents the cognitive frame the normative perspective constitutes and the lower right section incorporates the wider perspective on decision-making provided by the descriptive perspective. The arrow represents the above-described interplay, where 'the theoretical world' is a mirror image of how 'the real world' would like the order of nature to be, therefore providing theories on how to perform the process of making decisions as sensible as possible. In real life decision situations, the theoretical assumptions are therefore reproduced, though the actual processes have little resemblance with the normative theoretical assumptions. Yet, the fact that this figure leave two sections blank does not imply that there may be no 'decision-situations' that fit in with them.

3.3 Addressing the research questions

The section below is an attempt of putting the three research questions, addressed in the first chapter, in a theoretical context, which will provide explanatory support for the analysis to come. The questions are addressed by applying an institutional lens; however the notion of rational and goal-directed decision-making should not be misjudged. It is the acknowledged way of making decisions, and rationality appears completely inline with modernity; therefore not to be underestimated.

3.3.1 Regarding decision-making processes

This study directs interest towards understanding a particular decision process which can be, in my opinion, categorized as an investment decision process of strategic character. Studies of such processes have demonstrated them as gradual processes, incorporating a great number of parts of decisions, which in the end reduces the alterative courses of action (Sahlin-Andersson 1986). The decision to erect an offshore wind power facility includes, as earlier mentioned, scrutinizing numbers of different factors and entails significant capital expenditures. However, knowledge on how such facilities operate and how such application processes turn out remains limited; meaning that the process entails a great deal of uncertainty. In combination with the strategic implications of the decision, it is fair to say that it is not the question of any routine decision.

Sahlin-Andersson (1986) discusses 'extraordinary investment decisions' as being the opposite of routine decisions, i.e. they are non-recurrent decisions "*often involving basic long-range questions about the whole strategy of the firm or some part of it, and arising in a highly unstructured form"* (p. 22). The accomplishment of extraordinary investment decisions is described as the result of three mutually dependent, however loosely coupled, processes of

"*concretization, integration and association"* (ibid p.135). The process of concretization is described as gradually narrowing down the options and "*setting boundaries"* (ibid p.218) around the decision process, making the investment decision tangible, for example in terms of forming a project; emphasizing the underlying idea of the project as a solution to a problem. In the integration process, different actors become *"committed"* (ibid p.218) to the project, as their different interests are adapted within 'the framework' of the project and the project is adapted to the different interests. Within the association process, resources are linked to the project, putting it in an "*organizational context"* (ibid p.218), for example regarding its financing and localization. This description appears highly context dependent, for example how the concretization process turns out may be dependent on what people constitute the process and their perception of what goes on and what the problem and the solution might be or vice versa. It seems to be a question of what institutions prevail in contemporary society, e.g. 'organizational recipes' prescribing efficient organization methods of some kind or some other contemporary idea the organization 'should' incorporate (Rövik 2000). It is also a question regarding the adoption of such institutions at the time for the process since the dominating ideas are part of rendering and excluding possible courses of action (Blomquist and Jacobsson 2002). Thus, institutions constitute what the possible courses of action are and those involved in the process may act intentionally, however circumcised of the institutional context. In that sense, committing people to the process can be regarded as an institutionally dependent question of power; the different power relations between contemporary ideas may shape the formation of different coalitions, for example organizing different groupings such as those opposed and in favor of the project; 'within' as well as 'outside' the organization. The power relations between such interest groups in term may affect how the association process turns out, for example if one group controls the access of means it may obstruct or facilitate the formation of a project; "*the inter- and intra-organizational power distribution is decisive for the results of the decisions"* (Sahlin-Andersson 1986)(p. 173).

The rational decision-making process is the institutionalized way of how decisions should be made in modern Western society (March 1988; March 1994), thereby making 'the rules' of normative decision processes one of many things decision-makers must reflect on in order to 'succeed' within decision-making processes. Røvik (2000) argues that institutionalized perceptions on what organizations should, or should not, do, spread rapidly in modern society. Institutionalized perceptions can be regarded as bricks, which organizations can apply when shaping their organizational structures or processes. Røvik (ibid) discusses two perspectives

on how organizations internalize contemporary norms, the 'tool-perspective' and the 'symbolic-perspective'. The point of departure of the 'tool-perspective' is the rationalistic economic paradigm, described above, where norms on how organizations should operate are believed to emanate from distinct contexts; where the norm has proven to be functionally applicable. Making decisions then becomes a question about making a deliberative search of solutions to a perceived problem. Understanding decision-making when the 'symbolic-perspective' is applied presents a reverse interpretation. Instead of searching for a solution to a problem, a solution that at that time perceived as the right and modern way of doing something confronts the organization, exposing the organization to the normative pressure of complying with the institution. Thus, applying the 'symbolic perspective', the decision-making process becomes a question of finding a problem at which the solution can be appropriately applied, thereby complying with the contemporary institution; the organization receives legitimacy by manifesting the expected (Sahlin-Andersson 1986). However, institutionalized norms are not stable, meaning that though institutions create stability and decrease uncertainty the norms are constantly changing, molded within the interaction of infinite number of social actors; implying a constant pressure on organizations to change and conform.

As described, norms are sometimes conflicting and the magnitude of different norms is not always easy to predict. One example of failing to understand the power relation between conflicting norms, which later proved devastating for organizational legitimacy, is the plan of sinking the Brent-Spar oil platform. The decision caused Royal Dutch Shell, and even the British government, grave problems; not the least due to bad media publicity (Bardouille 2001; Löfstedt 2005). Consequently, it weakened Royal Dutch Shell's financial results and credibility on the financial market; demonstrating that there is a link between legitimacy and financial results.

Coping with existing and sometimes inconsistent norms, Meyer and Rowan (1977) discuss decoupling, where different organizational activities are loosely coupled, e.g. organized in projects, as to provide compliance with the conflicting norms surrounding them. As such, decisions to undertake different projects may work as different arenas for handling inconsistencies and legitimizing the organization. It has also been recognized that organizations talk, decide and act inconsistently in order to handle different and inconsistent norms (Rombach 1986; Brunsson 1989). As organizations are assumed to undertake activities

that respond to profitability and legitimacy concerns, when making decisions it becomes an issue of satisfying both these concerns, i.e. making profitable as well as legitimate decisions.

3.3.2 About evaluations

It seems profitability is a requisite for legitimacy, at least for business organizations. If the outcome of a decision does not entail increased efficiency, profitability or any other identifiable trade-off, the question why it should be made seems to come without fail. The dominating idea concerning profitability in contemporary society creates a normative pressure on business organizations making and presenting their decisions in compliance with this norm. The shortcomings of financial evaluations have been described above, e.g. that the theoretical perspectives on economic evaluation presuppose that decision-makers have access to all relevant information and objectively can assess and quantify all factors affecting the evaluation of projects. When business organizations make evaluations and decisions, they must reflect on issues which are not always easy to 'squeeze into' the framework of a normative evaluation model. In addition, decision makers may be uncertain about their preferences (Brunsson 1998). The preferences, assumed as guiding the evaluation of different choices, are uneasily predicted; they are a question of the future because it is in the future decision-makers are really able to evaluate the outcome of the decision (ibid).

Nevertheless, economic evaluations indeed are legally required in this kind of processes, business-administrative, i.e. financial, as well as socio-economic or national-economic. In making such socio-economic assessments, cost-benefit-analysis has been suggested as a technique to be used when considering the benefits of a project against its costs (Case, Fair et al. 1996). The logic of cost-benefit-analysis is weighing the total value of a project against the total costs. Assessing the total value and total costs imply that decision-makers are clear about the intrinsic values of all factors affecting, and affected by, the project under evaluation and that they can be translated into monetary terms. Pearce (2002) discusses different approaches and techniques for estimating the monetary value of natural resources. For example, a conventional market approach is described as using *"market prices for the environmental service that is affected"* (ibid p.105), adjusted by shadow prices if market prices are not accurate or assessable. Another example discussed is hedonic price methods, which is *"an attempt to estimate an implicit price for environmental attributes by looking at real markets in which those characteristics are effectively traded"* (ibid p.106). Another technique discussed

by Pearce is using the replacement cost approach, which is simply the cost for restoring a damaged natural asset.

However, real life evaluation is not as simple as stipulated (Ackerman 1970; Brunsson 1985; Currie 1989; Jansson 1993; March 1994; Blomquist and Jacobsson 2002; Flyvbjerg 2003) since determining all relevant factors, estimating their intrinsic values and translating them into adequate cash flows are conjectural exercises; nevertheless, they are almost for certain used (Jansson 1993). Flyvbjerg (2003) found that the inconsistency between theoretical models and practical evaluation is of a particularly problematic kind for infrastructure projects, such as electricity production. This is because the assessment of cash flows for such projects is complex as they involve prognoses over decades. Environmental and social factors caused by the project, affecting its viability, are hard to quantify and translate into economical terms. Thus, making a cost-benefit-analysis, an infrastructure investment can appear as both beneficial and unfavorable to society. Likewise, when applying a financial evaluation perspective an infrastructure investment can appear as a good and a poor business investment. In both cases it depends on what inputs one uses and it seems such inputs are difficult to evaluate objectively. Instead of functioning as objective evaluation tools, the calculations and different evaluations become arguments in the debate (Jansson 1993; Flyvbjerg 1998; Blomquist and Jacobsson 2002; Corvellec 2002). Thus, the evaluations are very important, however serving another reason than postulated within normative decision-making theories.

As described above, when making decisions organizations follow certain established procedures or rules of thumb (Nelson and Winter 1982). For example, many business organizations apply pre-specified rules about how investment evaluations should be handled, e.g. by designing manuals; prescribing what criteria to evaluate and how to evaluate them (Segelod 2005). Selection of evaluation method has been suggested as being related to tradition (Sandahl and Sjögren 2005), which conforms to the suggestion that organizations use experience developed 'rules of thumb', for example developed within different industries, when making evaluations. Interestingly, Svahn (2004) identified deficiencies in the methods applied for making evaluations within the energy industry.

Instead of objective evaluations per se Hamberg (2005) describes that managers have the tendency to focus on the amount of money at stake rather than on real project risks and in such situations, they tend to choose projects which they are emotionally connected to or projects they know have worked well historically. This demonstrates once again that the

question of calculative accuracy is relative, and really lies in the eyes of the beholder. Thus, the evaluation can be described as a response to the normative pressure that business organizations must economize on scarce resources; however, the evaluation cannot for certain determine a 'true' reflection of all the parameters affected by and affecting the evaluation, which makes it a tricky but necessary business. Still, as indicated, economic evaluations are indeed treated as snapshots of reality, thereby empowering the evaluator in the debate (Rombach and Zapata Johansson 2005); providing him or her with rational, and thus accepted as legitimate, arguments.

3.3.3 Concerning reasons

Every decision has a goal or purpose (Jackson and Carter 2000). What these goals, or reasons for that matter, are depends on the situation and the people who have access to the process (Cyert and March 1963). Scott (2003) describes the concept 'organizational goals' as being "*among the most slippery and treacherous of all those employed by organizational analysts"* (p.292); indicating a conception full of nuances. Cyert and March (1963) assign five different goals to business organizations; production, sales, inventory, market share and profit. Carter (1971) argues that goals *"are developed through formal and informal bargaining among participants"* and that *"they evolve through time, changing as the coalition membership alters, as the interaction among members change, and as the goals are fulfilled or not fulfilled"*(p. 413). The different reasons for undertaking certain actions have been suggested to be responses to perceived opportunities or threats confronting the organization in a changing environment (Porter 1985; Bower 1986). Ackerman (1970) describes investment decisions as discrete additions to an organization's operating base, where "*major capacity increases are a reaction to the long-term outlook for the business reflected in anticipated market growth and innovation"* (p.343). These descriptions share a notion that the decision, or rather the outcome of it, is the result of a perceived opportunity to satisfy some sort of organizational goal, in this case likely connected to profitability options, as it is a requisite for organizational survival and legitimacy.

Though the notion of formulating and pursuing goals related to profitability appears as an institution in itself *" it is not only competitive and efficiency-based forces that are at work"* (Scott 2003)(p. 119). However, as other demands posed on the organization may come in conflict with organizational profitability, organizations must engage in formulating goals reflecting additional institutional forces. Accordingly, the organization develops goals to cope

with these, sometimes inconsistent, institutions; goals that are reflected in their decision-making processes. Brunsson (1989) argues that a way of handling such situations is applying a "*difference between words and deeds"* (p.xiii), implying that organizations intentionally talk, decide and act inconsistently. Furthermore, these organizational activities point in different directions where *"talk and decisions pointing in one direction do not encourage actions in the same direction; rather, they compensate for actions in the opposite direction, just as actions in one direction compensate talk and decisions in a different one"* (p. xiv). When organizing activities in projects, the organization can communicate their intentions and rationales for undertaking the project as a response to certain norms while prevailing activities are undertaken just as before. Thus, organizations can buffer their technical core (Scott 2003), which provides resources for complying with the organizational profitability objective, meanwhile legitimizing their operations by undertaking projects pointing in a completely different direction.

The implication is that though there are likely to be some goals behind making different courses of action, the goals communicated might not be the goals the organization really pursues. On the contrary, what the organization wants to fulfill is context dependent and can vary over time, as different norms shift, coalition members alter and other goals are achieved or not.

3.4 Final reflections

The objective of this chapter was to provide a frame of reference; aiding the understanding of the empirical phenomena studied, which I characterized as a policy driven 'business-decision' process. The question now is if we have become any wiser about decision-making processes, evaluations and goals. For one thing, it appears as decisions, evaluations and goals are much intertwined concepts; neither comprehensively understood in isolation. Separating goals and decisions can be compared to the question about the chicken and the egg – which comes first? Do we really set up goals, which we thereafter try to fulfill by undertaking deliberative search and evaluation processes, or do we make decisions, which we thereafter assign an appropriate goal. Another question is if decision-making really is about choice (Brunsson 1998); we have developed procedures for making decisions that we seldom seem to follow, indicating that decisions can be about something else. The answer appears contextually dependent. In some cases, the context may allow us to act quite rational, e.g. when we have decent knowledge about the reality and the uncertainty that follows the outcome of a decision appears limited. In other cases, the context circumcises rationality, leaving few options of undertaking

qualified decision processes. Rational decision-making, including multiple-choice evaluation, may even jeopardize the chance of making any decision at all (Agevall 1994). For example, if the purpose of the decision is action, one should avoid causing uncertainty by actively dismissing alternatives, focusing on one single option (Brunsson 1998). We can also conclude that what one wants to achieve by making a certain decision is not always in accordance with what one chooses to communicate the decision is about; making a decision may be an attempt of achieving something else. Once more, the contextual setting appears to be circumscribing the process, e.g. the choice of any alternative, and its evaluation appears to be related to what people are involved in the process. The people who have access to the decision-making arena may have their own agendas; implicating that subjective opinions and subjective interpretations may have impact on the evaluated alternatives. In that sense, decision-making becomes an issue of power relations. The people who possess the ability to exercise power on others in a decision-making process are the ones shaping the outcome of the process. Instead of participating in decision processes unaffected by history, people tend to participate in a process that takes place in an historical present. Therefore, what experiences people convey and the social interplay between people, previous as well as present, seem to affect the contextual settings, perhaps to a greater extent than most people would like to admit.

The reflection I make is that organizational decision processes can be thought of as a coin, having a flip side, where one side reflects what really goes on in organizational decision-making processes and the other side reflects how the organization wants the very same process to be perceived. Under strong normative pressure to comply with the norms of decision-rationality the latter side of the coin is the one they need to emphasize.

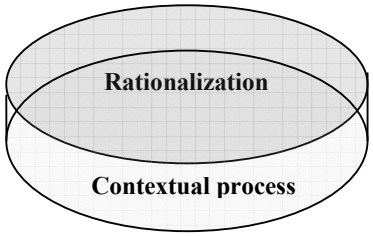


Figure 3-3 'The decision-making coin'

After stressing the notions that decision-making is a contextually dependent activity, the next section will provide the reader with the contextual setting in which the Fladen Project evolved. Consequently, a comprehensive description of the contextual setting becomes of importance since the idea is that 'micro-level' decisions are contingent on a greater whole.

4 Framing the contextual setting

"Electric current is an expression of matter movement. Parts of the molecule's atoms, the negatively charged electrons, flow in a settled direction. The orderliness of an electric current is greater than the chaotic movement of heat. Correspondingly, the wind in the atmosphere differs from heat: many molecules in the air flow in a settled direction instead of going about without order. That is why it is wise to produce electric current by utilizing the power of the wind. Oil and nuclear technologies are less elegant since they use fuel to heat water with the purpose of running a turbine. The hot water detour is a high price to pay for the toys of engineers."

Tor Nørretranders

This chapter provides an extensive description of wind power as a production technology and how wind power in Sweden has been deployed up until today. Thereafter follows an in-depth discussion of the electricity market reformation, the technology transformation processes and the present inducement system, providing a picture of their underlying causes and suggestions as to how they might affect the deployment of wind power. The purpose of this chapter is to provide the context in which the Fladen case takes place. Recalling the conclusion provided by the theoretical framework – that organizational decision-making is contextually dependent – stresses the importance of understanding the milieu within which the Fladen project evolved.

4.1 Wind power technology

Wind is a renewable energy resource. Wind power utilizes the energy put in movement due to the constant variation of temperature and atmospheric pressure, which is the result of the sun constantly shining on planet Earth, thus wind resources are plentiful and endless (Wizelius 2002). Nevertheless, wind power appears to be perceived quite differently. For some people wind power represents a clean energy resource, as it does not require any transportation of fuel. In addition, it does not lead to pollution nor does it develop waste products harmful to the environment. Yet, in the eyes of others, wind power is directly associated with noise, encroachment on the natural landscape, disturbed field of vision and a threat to wildlife.

Wind power turbines of today are highly efficient. In fact, even when operating under moderate wind conditions on shore, a wind turbine will recover all energy spent on its

manufacturing in less than three months. With a lifetime of 20 years, this gives a thermal efficiency of 8000%, i.e. the wind turbine recovers the energy 80 times during its technical lifetime, comparable to a conventional coal power plant's 45% (Martander 2002). The cost of wind-generated electricity continues to fall due to rapid technological development. This trend seems to continue, where larger turbines reduce costs of remaining infrastructure on a per unit installed capacity basis (IEA 2003). Since the beginning of the 1980's wind power turbines have doubled in size approximately every fourth year and present technology provides wind turbines of up to five MW size; large constructions with a tower height of 90 meters and a rotor diameter of approximately 80 meters. If technology development maintains the same pace, the next generation wind turbines will reach 10 MW at around 2010 (Wizelius 2002). In combination with technology development, the construction of production sites has also undergone significant changes, from the construction of individual turbines to the construction of wind turbine farms where many turbines are located at the same site. Technology development has also driven locations of such farms offshore where wind energy resources are far much better than they are on land. The largest facilities in Europe today contain hundreds of turbines located on land and at sea (ibid). Technological development and increased demand have also affected the wind power industry which is currently one of the fastest growing industries in the world; global growth was around 26% representing an estimated market value of 6 billion USD in 2002 (IEA 2003).

4.1.1 Developing wind power in Sweden[13]

In Sweden, wind power has a history of more than 30 years. The political discussions on introducing wind power in Sweden started in 1973 when two representatives for the Liberal Party (Folkpartiet) submitted a motion to the Swedish parliaments. Swedish Parliaments assigned the responsibility of investigating the options of wind power as a future energy source to The Energy Prognosis Investigation (Energiprognosutredningen, EPU), which had already been launched in 1972. The EPU concluded that wind power was not a suitable production resource at that time, however, they did believe in the possibility of future development. In 1975, the Board of Technological Development (Styrelsen för Teknisk Utveckling, STU) established a wind energy program; resulting in the first ventures for wind power which consisted of research on wind energy conditions and development of knowledge on wind power technology. Within the framework of this program the erection of the first Swedish wind turbine took place; Kalkugnen designed by Saab-Scania. In autumn 1977, the

[13] For a more thorough description see Rönnborg 2003 (in Swedish), pp 7-47

Delegation for Energy Research (Delegationen För Energiforskning) presented a report concerning the possibilities of increased efforts on developing renewable energy sources. The report presented a scenario where construction and full-scale operations tests of wind turbines were to be undertaken between 1977 and 1981. Thereafter the construction of demonstration facilities and decisions regarding further expansion were to follow. The report described a scenario where the deployment of wind power could commence in 1985 and by 1995, the report claimed, 4000MW could be installed, producing as much as 10TWh annually.

In 1977, the Swedish government launched a substantial program for R&D, granting in total 105 million Swedish kronor over a period of 3 years. The objective was to develop MW-sized turbines, aiming to attract interest from the electricity industry, which previously had concluded that it was an expensive and obsolete technology for producing electricity. In 1982 and 1983, two prototypes were constructed, by that time the largest turbines ever built, and Sweden was considered the leading nation in wind power development. The idea behind constructing two technologically different turbines was to create technological competition; thereby the best technological solution could be chosen and the electricity producers could proceed with erecting technologically superior turbines. However, demand from the electricity industry was in reality equal to zero because the deployment of nuclear power provided the electricity industry with all production resources they needed. In the energy policies proposition of 1985, the Swedish government wrote that the evaluation of the two constructed prototypes ought to function as a foundation for further research and development of Swedish wind power and that the electricity producers ought to be assigned considerable responsibility for this process. Consequently, despite lack of demand, the MW-size venture continued.

Instead of the anticipated industrial expansion driven by market demand from the electricity producers, a popular movement grew considerably at the end of the 1980ies and beginning of the 1990's. The idea, imported from Denmark, based on cooperative ownership resulted in the erection of smaller wind turbines, often located in agricultural regions. This 'green movement', in parallel with increased interest from farmers, contributed to the expansion of small-scale wind power deployment that took place during the 1990's; in 2000, cooperatives and farmers represented 60% ownership of the total wind power capacity installed in Sweden. In February 1990, the first three cooperatively owned wind turbines in Sweden were erected at a cost of three million Swedish kronor. The project, undertaken without any governmental financial support, was the commencement of the deployment of small-scale wind turbines and

gave rise to increased demand for such small-scale turbines, mostly constructed by Danish suppliers. A contributing factor to the increased demand was the first governmental investment subsidiaries, launched in 1991. In addition it was fairly easy to attain the permissions necessary, in some cases this process only took a couple of months, and politicians had established a 'short-termed' production goal, stating that wind power production should increase by 0.5 TWh annually until 2002.

In the beginning of the 1990's, a new kind of actor emerged on the newborn Swedish wind power market. These were wind power developers, primarily focusing on establishing turnkey projects, which they sold to cooperatives and farmers. Initiators of these companies were often people with roots in the popular movement who identified the increased demand and recognized the opportunity to commercialize the idealistic ideas that characterized the popular movement. In addition, since they had participated in the process of establishing the first cooperatively owned projects they had acquired competencies in developing projects. At first, the developers were active in local regional markets, e.g. on the islands Gotland and Öland and in the southern parts of Sweden such as Skåne and Halland. Since they knew the locality well and had good relations with landowners and local authorities this type of companies could expand their businesses. In parallel, foreign turbine producers (mostly Danish) established sales offices in Sweden. In fact, the first Danish turbine producer to operate in Sweden was Vestas. They were established in Sweden as early as 1982 and currently happen to be one of the largest wind turbine manufacturers in the world. Back then, Vestas was in the agricultural equipment business and through a Swedish reseller of such equipment demonstrated a small windmill constructed for farmers at the annual farming exhibition in Jönköping. In 1990, another turbine producer established business in Sweden and developers and turbine producers worked side by side, developing almost intertwined operations.

Installed capacity grew rapidly during the 1990's, from approximately 10 MW installed in 1990 to some 340 MW installed in 2002. However, the market grew less rapidly after 1996. Contributing factors were political inconsistency concerning subsidiary systems and increased difficulties in apprehending authorizations since various regulating authorities raised objections to the rapid expansion. In addition, public opinion against wind power grew.

4.1.2 Public opinion

Research implies that the Swedish people in general have a constructive attitude on wind power (Holmberg and Weibull 2000; Holmberg and Weibull 2001). A recent study (Ek 2005)

indicates that the majority of Swedish real estate owners is generally positive towards wind power. In addition, Sweden is a big country with many sites providing favorable wind conditions. These two factors indicate that wind power might play a central role in transforming production resources in accordance with the political objectives. However, research by Wolsink (1990) and Hammarlund (1997) indicates that attitudes on certain facility siting in a local context are more skeptical. In addition, Kahn (2004) concludes that conflicts often have a local character and that opposition is often led by ad hoc organizations, implying that wind power siting might become problematic.

Wind power has a history of being a source of local controversies where public opinion sometimes becomes quite vociferous. In Sweden, there are number of examples where wind power has come in conflict with other local interests such as outdoor life, landscape issues, fishing industry, wild life, tourist industry, real estate market prices and so forth. One example of such a controversy was an 'early consultation-meeting', organized by the Municipality on the island Gotland in July 2002, at which I participated. The reason for the meeting was that the Municipality presented its plans for possible locations of additional sites for wind power facilities. Their facility siting proposition was an effort with the aim of fulfilling the governmental '10 TWh planning objective' for wind power. Among many suggestions, the Municipality proposed the location of an offshore wind power facility, approximately 8 kilometers outside the east coast of Gotland. Heavy protests and angry people characterized the meeting, held at the local community centre in Katthammarsvik. Fishermen, farmers and summer residents argued that the local environment faced disaster if the municipal plans were to proceed. The interesting part is that, at the time of the meeting, no wind power developer had shown any interest, what so ever, in locating wind power at this particular site; the plan was only a municipal suggestion. Later, in one of my interviews, a wind power developer said that wind conditions at the suggested site were not good enough and costs related to electricity grid connections where too high. Consequently, it was impossible to build a financially viable project on that site. However, protests on the municipal plans were intense at the meeting. For example, one fisherman raised questions regarding economic compensation because he claimed "*all fish would vanish*". Many of the people I spoke with at the meeting expressed that they were not against wind power in general. However, locating such a facility here was equal to disaster. After the meeting, the man responsible for the local community centre in Katthammarsvik said that there had not been that many people at the center since the showing

of the movie “Fanny and Alexander” directed by Ingmar Bergman. This episode is one example of the magnitude of the decision processes related to wind power.

The fact that favorable wind conditions are often provided close to the coastline, or in open landscapes, where people for example enjoy recreational activities provides some explanation as to why wind power facility siting processes are a source of such local controversies. In addition, the electricity grid capacity directs wind power to the southern parts of Sweden where most people live. In some cases, local conflicts have become quite controversial processes, characterized by interplay between many different actors; representing a number of different interests and diverging perspectives (Boholm and Löfstedt 2004). The problem is that facility-siting processes can go on for years and the outcome is often difficult to foresee. Wind power developers have learned about this interplay and have in turn become street-smart, i.e. they have established a comprehensive picture of those projects worth ‘fighting’ for and those that are not (Bengtsson and Corvellec 2005).

Ek (2005) suggests investments in institutional capital as a productive instrument in reducing problems connected to local resistance, e.g. promoting participation in the planning process. Certain project developers, aiming for a constructive debate on a certain project, have tried to use this strategy. For example, the developer Airicole explored a project outside Abbekås in Skåne and invited all stakeholders to participate in a cost price excursion to study the offshore facility Utgrunden in Kalmarsund; the project, located 8 kilometers from the coastline, had faced heavy protests from the locals. The excursion, in which I participated, gave the involved stakeholders the possibility to achieve a more comprehensive knowledge of a ‘real-life’ offshore facility and provided the opportunity to study a ‘real-life’ offshore facility at close range. However, the excursion did not attract many participants; in total, only some 15 people attended it out of which the majority favored the facility outside Abbekås. In connection to the elections of the Swedish parliaments in 2002, there was a local referendum on the development of offshore wind power in the municipality Skurup, where Abbekås is situated. A small majority voted against further development and Airicole postponed the project. This indicates that, though developers make efforts to form a constructive picture of a certain project, the stakeholders involved seem to stick to their initial opinion of the project; indicating that it might be considerably problematic to turn local opposition.

Since local controversies appear to be of interest from media perspectives, they are often covered. Newspaper articles and debate articles on wind power issues illustrate how much attention is given to the controversies. Between December 2002 and December 2003, at least

153 articles in Swedish daily newspapers concerned wind power; of these at least 60 covered local controversies[14]. This is another indicator of the magnitude of public opinion facility siting processes can face and emphasizes the delicacy of such processes. The wind power developer certainly risks bad publicity and the arguments from opponents are seldom easy to confront in a rational sense; they are often emotional and subjective, e.g. that wind power constructions are ugly and do not fit into the landscape. In combination with the notion that wind power facilities merely contribute to marginal electricity production, wind power developers face a problematic process defending their motives for making the investment; implying there is a risk of undermined legitimacy. The fact that wind power, by many, appears to be viewed as an unreliable energy resource can be explained by the wind power industry's inability to demonstrate that wind power is more than an energy resource for romantic dreamers (Rönnborg 2003) and the reluctant attitude from the electricity producers, since they function as legitimacy providers (Bergek 2002). In spite of the constructive attitude proposed by research, the opinion that people generally oppose wind power projects seems rooted within the minds of the Swedish wind power representatives, by them often explained as an instance of NIMBYism[15].

Nevertheless, the magnitude and impact of public opinion has become increasingly important for business organizations. For example, organizations are becoming more and more keen on presenting themselves as good 'corporate citizens' which implies they are incorporating social values within their business missions, e.g. the welfare of contemporary society (Maignan and Ferrell 2003). Therefore, the public opinion is an important institutional force to take under consideration; in some cases, it certainly seems to have affected the outcome of application processes.

4.1.3 Wind power in Sweden today

The current trend on the Swedish market, as well as other European markets, is that projects are getting bigger and bigger, implying that projects are becoming harder to finance for the investors who up until now have been the major wind power investors, i.e. farmers and cooperatives. Wind power technology of today has reached the state that the electricity producers back in the seventies claimed it had to reach in order to be of commercial interest. Larger turbines have driven wind power developers to search for locations where wind power

[14] Information from Internet www.mediearkivet.se, using search string 'Vindkraft ELLER Vindkraftverk'
[15] NIMBYism, (Not In My Backyard), The attitude of a person who hopes or seeks to keep some dangerous or unpleasant feature out of his or her neighbourhood (www.worspy.com/words/NIMBY.asp)

is less likely to interfere with other national and local interests, e.g. offshore and other more remote locations (Rönnborg 2003).

The offshore trend

At present, offshore is the current buzzword within the wind power industry. The wind power industry and other analysts for some time have expected offshore wind power to become a growing market. The major reason is that wind conditions at sea are far much better and stable than at land, resulting in increased and more predictable electricity production (BWEA 2004).

In Sweden, offshore wind power has been discussed since 1996 (Rönnborg 2003). In fact, Swedish wind power developers were the first to explore the opportunities of constructing offshore wind power; the first commercial offshore facility was constructed outside the west coast of the island Gotland in the Baltic Sea. The project *Bockstigen,* constructed by the Swedish developer Vindkompaniet AB, consisted of five 500kW windmills. The project was a success and triggered Vindkompaniet to push an additional offshore project forward; the Utgrunden site located in Kalmarsund in the Baltic Sea. However, due to appeals against the project, filed by the Swedish National Board of Trade (Kammarkollegiet), they ran into financial problems and therefore had to postpone the project. The postponement caused Vindkompaniet severe financial problems and they sold the project Utgrunden to a foreign developer. One year later, in order to avoid bankruptcy, the owners of Vindkompaniet sold the company to a Danish wind turbine manufacturer (ibid). Ironically, in March 2002 the Swedish Minister of Industry opened the Utgrunden site. At the opening ceremony, the Minister of Industry made the following statement: "*Developing new technology is of importance for utilizing the power of the wind. Of uttermost importance is also the creation of long-term and stable conditions for the future expansion of wind power in Sweden… In spring 2002, the Swedish Government intends to present a coherent strategy for the future of wind power. I believe it will be rather bright"* [16]

After some years of stagnating demand, representatives for the Swedish wind power industry hoped for a prospering future. However, what seemed perfectly clear to them was that this new type of enlarged projects required new forms of financial solutions or different investors. Interestingly, the present technology in addition to the options of the offshore market implies opportunities for the very same actors, which historically has rejected large-scale investments in wind power, namely the electricity producers.

[16] Internet http://www.svensk-vindkraft.org/MEDVIND2_2001.pdf (2005-03-09)

In concluding this section, we now know a little about wind power as a technology; it is clean and efficient, but also a source of adversaries. We have also learned that the deployment of wind power in Sweden has been an ongoing process for about thirty years, a process which has been quite unsuccessful (at least if one considers the results in the light of the aspirations). Furthermore, the present technology directs wind power projects to remote places, preferably offshore where wind resources are significantly better and where they can be 'kept out of sight'. It is now time to turn our attention towards the reformed electricity market – the contextual setting in which increased use of wind power must fit.

4.2 Reforming electricity markets

This section provides extended knowledge on the operating conditions for the entrusted market actors, which are the ones assumed to take leading responsibility for the further deployment of wind power. The first part of the description starts at the European level, providing a picture of the intentions behind the European market reformation. Thereafter, the Swedish market reformation and its effects are scrutinized to a wider extent.

The past fifteen years have been characterized by a liberalization of the electricity market (Meyer 1998); a Pan-European electricity market is evolving (Sioshansi 2001) and according to Trygg and Karlsson (2005) Sweden is part of this Pan-European market since 2004. The EU deadline for full opening of the market was 1 July 2004 for all business customers and for households the deadline is 1 July 2007[17]. The EU has prescribed common rules for this 'intra European' electricity market in the directive 96/92EC (ibid); part of the EU ambition to create free movement of goods, capital, services and people among the member states. This process, causing substantial changes concerning market conditions, is a result of a changed political attitude on market-based solutions for public utilities; resting on the neoliberal paradigm that the market economy is a better system for satisfying human needs (Self 1993). The 'neoliberal wave' has spread within modern western society, leading to disengagement of public actors' responsibility for a number of different public utilities (Self 2000). Åkerstrøm Andersen (2000) argues that this neoliberal form of public organization has been advocated since the beginning of the 1980's, thereby *"replacing politics with markets"* (ibid p.43). The belief that governments should do less and reform public sector according to the concept of a market economy seems widely shared and the electricity market represents one of the many reformed 'public markets'. As reforming the electricity market within the EU is an ongoing process,

[17] http://europa.eu.int/comm/energy/electricity/publications/doc/2004_07_09_memo_en.pdf

the pace of reforming electricity markets varies within member states. The table below indicates the level of market reformation within the different member states.

Level of competition	Market
Not functioning	Greece, Estonia, Latvia
Initial steps only	Belgium (FR), Luxembourg, Portugal, Poland, Czech Republic, Slovenia, Slovakia, Lithuania
Some progress	Germany, Spain, Belgium(NL), Ireland, Italy, France, Hungary
Well-developed	Austria, Netherlands
Complete	UK, Sweden, Finland, Norway, Denmark

Table 1 Development of a competitive European electricity market
Source: European Commission Memo, *Towards a competitive and regulated European electricity and gas market*, http://europa.eu.int/comm/energy/electricity/publications/doc/2004_07_09_memo_en.pdf

As we can see, the Nordic countries have competitive electricity markets where as many of the other European countries are still in progress. In fact, the Nordic markets were the first to be deregulated. The interesting part is that if the EU objectives of a wholly integrated electricity market shall hold, there are major changes ahead; affecting the shape of separate markets as well as the shape of operating conditions for individual market actors.

How an integrated and transformed European electricity market will turn out is unclear, causing uncertainty concerning the future operating conditions for such a market, e.g. regarding at what level demand and supply will settle; affecting the establishment of prices as well as the need for production capacity. This uncertainty most likely affects the market actors' propensity to undertake any kind of investments in new production technology.

4.2.1 The Swedish market reformation

In Sweden, the problems of the economy in the beginning of the 1990's was supposed as being connected to major obstacles for stability and growth (Näringsdepartementet 1994); developed and aggravated during a long period. In the neoliberal wave sweeping over modern western societies (Self 1993; Self 2000; Åkerstrøm Andersen 2000), the institutional framework of a market economy appears to have been regarded as the solution to these problems. In this context, reforming the electricity market was an important part of the overall market reformation process initiated by the government. A will to decrease state spending on public utilities and at the same time increase the economic growth also triggered the reformation (Sandoff 2002). A 'deregulated' market was believed to generate a more rational usage of production resources and lead to safe, flexible and cheap procurement of electricity (Näringsdepartementet 1994). At the same time, reforming the electricity market was essential

in order for the EU directives on creating opportunities for a Pan-European electricity market to stay effective; therefore a more pragmatic reason for the deregulation was perhaps the institutional pressure within the European Union to reform due to the ongoing and future 'intra-European' market reformation processes.

In January 1996, the Swedish market was formally 'deregulated' resulting in a competitive electricity market, theoretically implying that all end-users could choose their electricity supplier freely. In practice however, this did not become a reality until 1999, when the Swedish parliaments decided to dismiss the demand for constant measuring of electricity consumption and replace it with a system based on expected consumption. The reformation also implied new objectives for the electricity producing companies. Over one night the prevalent rules of the game became the rules of the market and the electricity industry had to adjust, which resulted in structural changes within the industry. For example, at the time of the reformation the electricity market was characterized by overcapacity, which triggered an optimization of the industry's production resources; resulting in the closure of electricity production facilities (Midttun and Summerton 1998). According to Bergmasth and Strid (2004) the market reformation changed the electricity producers' identity from historically being associated with what was best for society into being associated with making the highest profits possible as their first priority; *"making their perspectives more short-termed in the pursuit of profitable projects"* (ibid p.251). Likewise, Svahn (2004) concluded that since the market reformation the prevailing 'market rules' can be explained from a business administrative perspective; making the market actors' objective to make the highest profits possible. For many electricity producers this still is quite a new situation. Only nine years ago, they where operating in a market characterized by monopoly concessions, implying stable and long-term market conditions; based on co-ordination of production, which had prevailed throughout the modern era of electrifying Sweden (Svenska-Kraftnät 2004). Prior to the reformation, the electricity producers conducted their operations as utility providers; selling their output to subscribers connected to the grid. After January 1996, a reformed market implied somewhat more unpredictable and less calculable conditions, though the major producers remain the same as before the reformation; the word customer replaced subscriber and the electricity industry had to become market-oriented, focusing on satisfying customer needs and putting the customer in focus (Gummesson 1994). However, in many cases, the people in the organizations are the same as before the market transformation and for them it certainly has been evolving times. Quite naturally, however, the transformation from utility

providers operating as monopolists to corporative organizations is a process affecting the electricity producers' goals, and as indicated above, makes them more business-driven.

The reforming of the market lead to increased market concentration which was caused by two strong trends, consolidation and cross-ownership among the largest companies and internationalization (Midttun and Summerton 1998). The electricity producers have become integrated actors with interests in the Nordic market as well as in other European markets. Likewise, foreign electricity producers have interests in the Swedish electricity industry. Examples of motives for Swedish electricity producers to enter foreign markets are that the Swedish market has reached a saturation point but they also have the desire to strengthen their positions in a changing European market (Sandoff 2002). Similarly, a motive for foreign companies to enter the Swedish markets is the desire to gain experience from a competitive market and since January 1996, several examples of both horizontal and vertical integration in the industry have arisen (ibid). Another explanation for the structure change is the poor economic conditions for the Swedish municipalities during the 1990s. Prior to the market reformation, municipality controlled utilities were common actors in the market. However, as a reaction to bad municipal economy many municipally owned electricity companies were sold (ibid). Today six companies[18] dominate the Swedish market, producing approximately 90 percent of all the electricity in Sweden (Energimyndigheten 2003) (p.19). Municipally owned electricity producers mainly produce the remaining ten percent. The Swedish state remains the owner of the largest producer Vattenfall AB; leaving the state as a key actor in the electricity production industry while making them a key actor in undertaking their own aspirations on the transformation of production technology.

4.2.2 The current market structure

Today all the electricity produced within Scandinavia (Iceland excepted) trades either at the NordPool marketplace or through bilateral agreements. The Nordic countries have integrated their electricity markets with the implication that the market development in Sweden can no longer be regarded to in isolation. Instead, it should be understood in a wider perspective (Energimyndigheten 2003). The reason being is that the distribution of electricity on the Nordic market is nested in a complex web where many different actors are involved. The figure below outlines the current market structure.

[18] The electricity production in Sweden: Vattenfall AB 54%, E.On (Former Sydkraft) 22%, Birka Energi (Birka is owned by Fortum Power and Heat AB), Fortum Kraft AB 19%, Skellefteå Kraft AB 3% and Graninge 2% (Graninge is subsidiary company to Sydkraft). Energimyndigheten (2003, p.19)

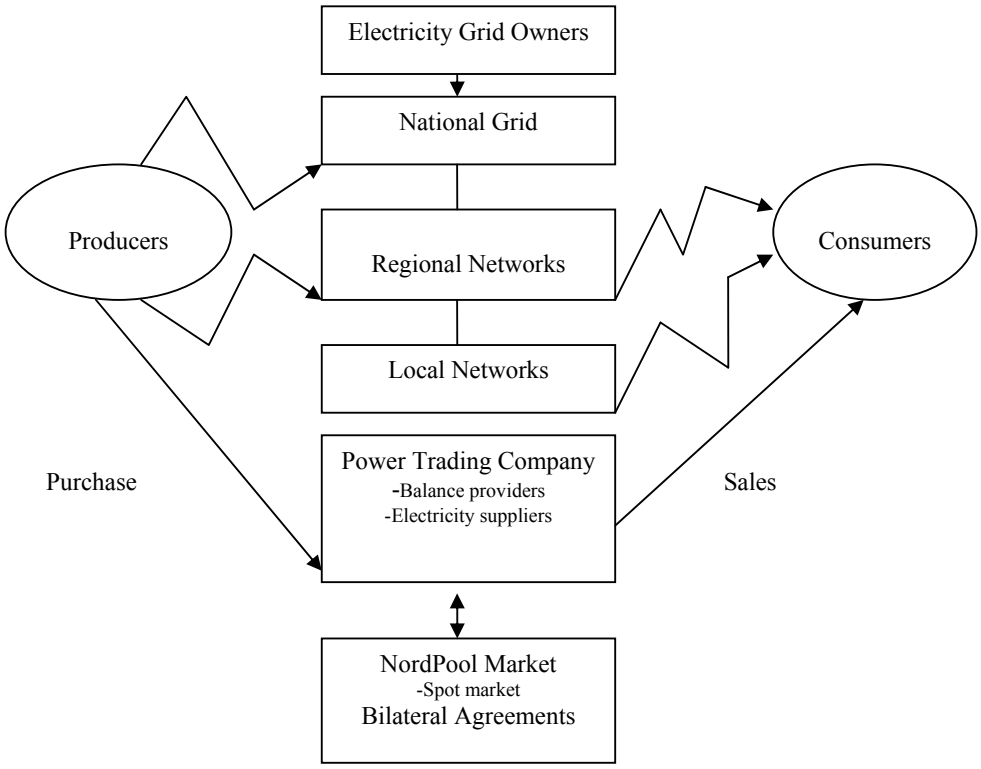


Figure 4-1 The electricity market actors
Source: Svahn (2004) p. 16

Since the market reformation, production and distribution of electricity have become separate activities; electricity producers feed electricity into the distribution system; grid operators transfer the electricity to end users; and electricity traders function as retailers, establishing a role as a 'clearinghouse' between producers and consumers. The market is divided into different regions. Electricity production is a complex process as it entails that production and consumption are in balance, which requires constant measuring and transferring of electricity from one region to another; implying that the production units within the different regions affect one another. Production capacity in one region affects production capacity in another; available production recourses in combination with the ability to transfer electricity from one region to another, so-called bottlenecks, also affect market prices.

Production and sales are exposed to competition while distribution, i.e. transmission, remains a natural monopoly. Different actors operate the electricity grid and are divided into national, regional and local levels. The state utility organization Svenska Kraftnät is responsible for the national grid providing transmission to regional networks; regional networks and local networks feed the consumers with electricity. Private companies as well as municipal

companies are the owners of regional and local networks. There are nine different actors on the regional level and some 200 actors on the local level (Svahn 2004).

The production resources

The production system on the Nordic electricity market consists of a combination of different production resources characterized as continuous, adjustable or non-adjustable. Nuclear power is considered continuous, hydropower considered adjustable and wind power considered non-adjustable. The table below describes production technologies and their individual contribution to the electricity production system in Sweden, as it is today and a prognosis for the future.

Electricity production in Sweden	**1999**	**2000**	**2001**	**2002**	**2010**
Total production TWh	151.0	142.0	157.8	143.4	147.8
Hydropower	70.9	77.8	78.6	66.0	68.6
Nuclear power	70.2	54.8	69.2	65.6	63.6
Wind power	0.4	0.5	0.5	0.6	3.9
Thermal power	9.4	8.9	9.6	11.2	11.8
Import-Export	-7.5	4.7	-7.3	5.4	4.2

Table 2 Electricity production in Sweden 1999-2002 including prognosis for 2010
Source: Elmarknaden 2003, p.25

The table indicates that the base of the Swedish electricity supply system is hydropower and nuclear power representing approximately 95% of all electricity produced. Both technologies are CO_2-free, which implies that the transformation process does not have any direct connection to the policies for reducing such emissions. Indirectly it affects CO_2 emissions since investments in renewables in Sweden can replace fossil-fueled electricity production somewhere else on the integrated Nordic electricity market and all over Europe, once the European market integration takes place.

There is a short supply of continuous power capacity, however the supply of non-adjustable power capacity is increasing (Energimyndigheten 2003). The problem is that increased use of non-adjustable power might cause electricity supply to fluctuate and this is certainly a problem to take seriously; electricity power failure might have effect on the economy as a whole. Because of the consolidation of production resources, there is increased risk for capacity shortage, most likely to occur on cold weekdays during the winter when industrial production and house heating boost electricity consumption. Prior to the reformation, the electricity producers were jointly responsible for maintaining extra capacity in case of sudden shortages. The reformation ended this cooperation since one of the ideas behind the creation

of a competitive market was to reflect costs for capacity shortage correctly (Sandoff 2002). However, awareness of possible capacity shortage gave rise to the Swedish Government assigning Svenska Kraftnät the responsibility of maintaining 2000 MW spare capacity until 2008, where after the market actors are to maintain this capacity themselves[19].

Location of new production resources

One factor influencing potential locations for new production facilities is their geographic location in relation to actual consumption. The market is presently divided into geographic regions within which production resources are centralized in large-scale production facilities, e.g. nuclear power plants are located at three different places, Ringhals, Oskarshamn and Forsmark[20] (after 31 May 2005 the forth nuclear plant, Barsebäck, was closed permanently) and hydropower is mainly produced in the northern regions. The present construction of the electricity grid supports this structure.

Currently, there is short supply of production resources in the southern parts of Sweden. As most of the demand for electricity comes from the southern area this implies that new and large production facilities should preferably be located there. Thus, the ability to transfer electricity in the national grid also affects future locations of large-scale wind power facilities. Locating further production resources, such as offshore wind power, in the north, according to a report produced by Svenska Kraftnät, entails transmission problems since large-scale wind power facilities in the north would enforce investments in new transmission grids, which would cost at least four billion Swedish kronor (Svenska-Kraftnät 2002). Therefore, their report advocates the location of new production resources close to the actual demand, i.e. in the south of Sweden. Both academics[21] and the wind power industry criticized the report and claimed that Svenska Kraftnät was unrealistic and imprecise about actual capacity for wind power in the north. Nevertheless, Svenska Kraftnät is an important regulating authority; implying that the report from Svenska Kraftnät directs wind power projects towards the southern parts of the country.

4.2.3 Effects of the reformation

At first, market prices declined. However, during the last years, market prices for electricity have rocketed while production costs have maintained at a low level, implying that many electricity producers have reaped huge profits. Production resources have been slim-lined

[19] Internet http://www.svk.se/web/Page.aspx?id=5595 (2005-03-10)
[20] http://www.ski.se/extra/tools/parser/index.cgi?url=/html/parse/index.html (2005-01-27)
[21] Internet http://www.ets.kth.se/ees/lennart_vindremiss021209.htm (2005-03-10)

implying that production facilities representing high costs of production have been decommissioned. Thus, low operating costs in combination with high market prices for consumers have created enormous profitability options and producing electricity in depreciated facilities has become a virtual gold mine for the companies involved. Another important factor affecting profitability is the result of a perceived risk of supply shortage, which has driven up prices. One explanation for this is the fact that hydropower production has not supplied electricity as it did before because recent years have provided little rainfall and bad spring floods. In order to satisfy the demand, electricity suppliers have had to import, mainly from Denmark, Germany and Poland, which involved electricity produced in carbon-heated plants. A more recent explanation for the high electricity prices is the initiated emissions-trade program[22]. The high prices entail that the profit margins in the existing Swedish production facilities will become even greater.

This 'snapshot' of the reformed electricity market tells us that the process of integrating all European markets remains far from finished. Nevertheless, Swedish electricity producers have been quite on the offensive by expanding their operations by ventures in other European countries, and thereby becoming integrated actors while establishing a European position. Likewise, foreign companies have entered the Swedish market to gain experiences. This section also provides knowledge concerning the price for electricity, which has settled on quite a higher level than prior to the reformation, which in fact contradicts one of its major intentions, and also indicates that there is a need for additional production resources, especially in the southern parts of Sweden. The next section will provide an extensive discussion about the rationales behind the political will to transform production technologies.

4.3 The rationales of the transformation process

According to Harrison (2005) a national desire of energy independence combined with the agreements of to the Kyoto protocol on reducing carbon emissions is shaping energy policies. At a European level, energy supply issues have received increased attention, e.g. the EU 'White Paper' on energy stating that the European Union members are too dependent of energy resources they cannot control; creating pressure to transform the energy system. In addition, transforming production technologies is part of an intention to increase utilization of renewable energy sources because of the greenhouse-gas problem – described by UN as one of the most important issues concerning humanity. Thus, the highest political level within the

[22] Göteborgs Posten (2005-08-27) 'Räkna med högt elpris de kommande åren'

EU supports the aspirations to transform the energy system and an EU Renewable Energy Directive states that the proportion of the electricity supplied from renewables should increase from 14 percent in 1997 to 21 percent by 2010.

4.3.1 The Swedish transformation process

In Sweden, the transformation of production technology is not as strongly connected to the reduction of CO2 gases as in other EU countries[23]. Instead, the political decision to decommission nuclear power is the rationale for transforming production technology where two main alternatives have been discussed; one has been the increased use of natural gas and the other has been an extensive program for increased energy efficiency and development of renewable energy sources (Helby 1998). The political majority opted the latter alternative and stated that renewable energy sources should be the base of the energy system and that the energy resources should primarily be *"durable, domestic and renewable with as little environmental impact as possible"* (Ds2000:14). The objective of Swedish energy policies is to safeguard the supply of electricity and other energy sources at competitive prices (Näringsdepartementet 2000; Näringsdepartementet 2002). In doing so, it should develop policies with the purpose of creating conditions for efficient and sustainable energy utilization and energy supply representing low negative impact on health, environment and climate also facilitating what is described as the transition into what is referred to as an ecologically persistent society (ibid). The present political goal is to increase renewable electricity production with an additional 10 TWh by the year 2010[24], and, as earlier mentioned, increase wind power production with an additional 10 TWh by 2015 (Näringsdepartementet 2002).

4.3.2 The nuclear issue

Nuclear power has been a controversial issue in Sweden for the last 30 years. The technology was introduced in the early seventies and the political determination to build eleven nuclear plants was reinforced by the 1973 oil crisis (Carlman 1990). The oil crisis hit the fundaments of Swedish industry hard and what once had been comparative advantages became disadvantages (Anshelm 1995). Thus, the fear of being dependent on a single uncontrollable energy source triggered a transformation from oil to nuclear for producing electricity – instead of being dependent on oil, Sweden became dependent on nuclear power. In spite of the early political majority, a growing concern for nuclear environmental effects[25] and the 1979

[23] Approximately 95% of all electricity produced in Sweden is CO2 free (Energimyndigheten, 2003).
[24] 10 TWh is roughly 7% of all electricity produced in Sweden (Energimyndigheten, 2003).
[25] The magnitude of the issue was a contributing fact when the Social Democratic Party lost the election in 1976, an historical event since they had enjoyed political majority since 1931 (Anshelm, 1995).

accident at the Three Mile Island power plant led to the 1980 referendum on nuclear power. The results of the referendum gave rise to the political decision to shut down all reactors by 2010, as the technical lifetime of the reactors, at the time of this decision, was believed to be 25 years (Näringsdepartementet 1997).

Despite the 2010 dismantling objective, the results of the referendum was ambiguous since it was stated that nuclear power was to be phased out in a pace that would not jeopardize the electricity production needed to maintain employment and welfare[26]. This ambiguity is still plaguing Swedish energy policies and policies on nuclear power have not been consistent. The policies are connected with the fear of negative impact on Swedish industrial competitiveness, if 'cheap' electricity produced from nuclear power is replaced by 'expensive' electricity produced from renewables, such as wind power. Thus, the expansion of renewables, such as wind power, has a history of being regarded as contradictory to economic development and welfare. The political ambiguity concerning nuclear power also indicates that economic interests have a big impact on Swedish energy policies and on future use of nuclear power.

Since the referendum, the debate regarding what energy resources should replace nuclear power has endured. Renewables, such as wind power was, and still is, believed to be one of the energy resources of the future (Edman 1998). However, there is no political consensus on energy policies. Nuclear policies are inconsistent, and even the Centre Party, historically the harshest critics on nuclear power, are now tottering on the nuclear issue. Some electricity industry representatives have claimed that decommissioning entails increased electricity prices by at least twice as much[27]; affecting Swedish industrial competitiveness and in the end employments and welfare. Recent electricity price increases seem to affect the attitude of Swedish people towards the dismantling of nuclear power and research (Holmberg and Weibull 2004) shows that nuclear power has gained increased public support. Once more, increased electricity prices seem to be working in favor of nuclear power and against increased usage of renewables; only the few seem to accept increased electricity prices. Nevertheless, the decision to decommission nuclear power still stands. However, the Swedish parliaments in 1997 revoked the explicit goal to close the last reactor by 2010. Until today, only the two reactors in Barsebäck have been closed, the last in May 2005.

[26] In the referendum there was not a clear cut between yes and no since there where three different alternatives; two in favor of nuclear power and one opposing it. The majority voted for what was referred to as 'rational nuclear phase-out' represented by the Social-democratic party.
[27] Newspaper article, Göteborgs-Posten, 2004-11-22, "Kämpar för billig och säker el till industrin"

During 2004, the government tried to negotiate with the electricity industry on a voluntary plan for 'phasing-out' nuclear power. However, the negotiations broke down, and once more, resulted in a moratorium on the nuclear issue. This means a great deal of uncertainty on the future need for the large-scale introduction of new electricity production technology. It also most likely affects the electricity industry's propensity to undertake any capital investments in renewables because such decisions are of long-term perspectives and electricity industry actors appear to be very careful when evaluating such technologies and making decisions about investment opportunities.

Regarding the transformation process many seem to share the notion that we need to do something about man-related environmental impact; apparently one of the main driving forces behind the transformation process. Another motive is the fear of being dependent on energy sources we cannot control. We have been in this position before and we do not want to be there again; accordingly, we desire a shift into resources that make us less dependant on others. However, concerning the Swedish 'transformation case' the political process for dismantling nuclear power is full of ambiguities; e.g. we must 'get rid' of nuclear power however we cannot jeopardize welfare. This section also told us that there is a historic 'conflict' between nuclear power and wind power, one example of how this conflict is maintained is that newspapers often describe wind power projects in relation. The next section provides an exploration of the supportive policies, created with the intention to facilitate the transformation process. Because this process takes place within a market economy framework, where market actors' main objective is profits, it is of importance to understand the intended function of the supportive economic framework.

4.4 Inducement policies

Within the EU and the Nordic countries, efforts are made to stimulate green electricity production and green electricity producers sometimes need support to be able to keep up with competition (Energimyndigheten 2003). Reaching the political objective of additional 10TWh, renewable electricity production clearly entails extensive capital investments in new production technology. To sustain this process such technologies are, and have been, supported by inducement policies. In May 2003, the Swedish government launched a new inducement system, aiming to increase the competitiveness and further expansion of renewable production technology. The new system is a market-based solution, based upon increasing obligatory consumption quotas and is supposed to provide revenues enough to

make the necessary investments profitable and thus more attractive in the eyes of the market actors. The inducement system complies with the traditional Swedish perspective on changes in the energy system and according to Sandoff (2003), is regarded as a systematic activity based on the marginal costs associated to different technologies. Thus, it seems the prevailing idea is that once market actors perceive the economic conditions favorable enough, these types of investments will increase.

4.4.1 Inducement system exposition

In Sweden, there have been several different programs for supporting the introduction of wind power[28]. The new system replaces former inducement policies for wind power and is supposed to function as a market-based solution where producers of green electricity receive certificates in relation to how much they produce, i.e. for each kWh produced they receive a certificate; replacing the old system designed mainly as direct investment subsidiaries and targeted production support. The purpose of the new system is "*to stimulate capital investments in renewable electricity production in a competition-neutral way"* (Näringsdepartementet 2002)(p.90). Market mechanisms perform the function of establishing prices for the 'green certificates' where obligatory consumption quotas ensure demand, implying that taxation no longer finances the inducement system, instead consumers now have to pay directly for the transformation of production technology. The system is a combined system for all renewable electricity production and is the result of a process aiming to hinder distorted competition between the various production technologies. All renewable technologies, except existing and new large-scale hydropower are entitled certificates; the objective is to provide a more long-term program, stimulating investments in renewable energy sources and ensure efficient energy utilization(Näringsdepartementet 2002). One question that arises is how much renewable electricity production the yearly increasing quotas imply. The table below provides a rough prognosis on the demand for new 'green' electricity production resources.

[28] For detailed reading see: Åstrand, K. and L. Neij (2003). Styrmedel för vindkraftens utveckling i Sverige. Lund, Department of Environmental and Energy Systems Studies Lund University.

Year	Prod. TWh *1	Quota	Prod. Renewable TWh *2	Price floor *3	Price ceiling *4	Bonus*5
2003	110	7.4%	8.14	0.06	0.175	0.18
2004	110	8.1%	8.91	0.05	0.24	0.16
2005	110	10.4%	11.44	0.04		0.14
2006	110	12.6%	13.86	0.03		0.12
2007	110	14.1%	15.51	0.02		0.09
2008	110	15.3%	16.83			0.07
2009	110	16.0%	17.60			0.05
2010	110	16.9%	18.59			0

*1 Production related to electricity intense industry excluded
(Approximately 40 TWh according to Government proposition 2002/2003:40)
*2 Wind power, Bio-fuel thermal heating, Small-scale hydropower, New hydro power
*3, *4, *5 SEK/kWh

Table 3 Estimation of demand for green electricity production
Source: Rönnborg 2003, p.26

The table describes the yearly increase in quotas and the 'price floor' is a guaranteed price for the five first years. The guaranteed price is to be regarded as a securing mechanism; important for both providing system legitimacy and securing producers against 'too low prices' (Näringsdepartementet 2002). By 2010, the quota is set to be 16.9%, implying the same set of renewably produced electricity, consumed by end-user. In addition to the new system, wind power retains one of the production-related support mechanisms from the old system, referred to as environmental bonus, decreasing each year until 2009.

Concerning wind power, the new system adds additional financial burden for the investing organization because secured cash flows are replaced with less secure cash flows[29]; the former system, based on both an investment subsidiary in combination with a guaranteed

[29] Equation: Substituting secure cash subsidiaries for green certificates, Source: Lindblom, 2001

$$-(1-b_i)G_i + \sum_{t=1}^{n} Bf_{it}(1+r_i)^{-t} = -G_i + \sum_{t=1}^{n}(C_{it} + Be_{it})(1+r_i)^{-t}(1+\Delta_{wi})^{-5}$$

b_i = Investment subsidiary in percentage

G_i = Initial capital outflow

Bf_{it} = Cash flows, year *t*, before green certificates system

Be_{it} = Cash flows, year *t*, after green certificates system

Δ_{wi} = Changed in risk premium for investment *i*

Left-hand side of the equation describes the NPV[29] of an individual project when an inducement in terms of guaranteed subsidiaries is used and the right hand side describes the NPV of an individual project using the quota-based certificates system. Accordingly, there are two different aspects constituting the increased risk:

i. Increased financial risk because equity must finance repealed investment subsidiaries
ii. Increased business risk because a less secure cash flow replace a secure cash flow

production subsidiary, is replaced by a system where 'subsidiary' levels are less predictable (Lindblom 2001). This implies increased risk for the investing organization, which according to Lindblom (ibid) results in increased yield requirements for such investments. Therefore, in terms of financial evaluation, such investments 'should' become tougher than they were prior to the new inducement system in order to make a business case.

How this new inducement system affects potential investors' propensity to make capital investments in wind power is hard to evaluate, however, if the conclusion provided by Lindblom proves correct, it is likely that is has some effect on how a project is evaluated. If investors require increased returns, it might negatively affect the expansion of wind power. On the other hand, the increasing quotas require increased utilization of renewable energy technologies, supposedly entailing additional investments. However, the system time horizon is once more in focus. According to some electricity industry representatives, the system time horizon is too short. They claim that inducement system conditions must not be optimal; instead, they stress the importance of a durable system. Wind power industry representatives also have also claimed that the lack of long-term and stable conditions negatively affect the electricity industry's attitude towards wind power and there have been at least three different models used for supporting investments in wind power since 1994 (Rönnborg 2003). It appears they have had their requests granted, politicians recently decided prolongation of the system until 2030[30].

4.5 A short summarization before 'entering' the case study

Politicians have since the beginning of the discussions on wind power avowed the importance of the electricity producers. Although the Swedish electricity producers have had impact on developing wind power, mostly in terms of research and development, other actors such as cooperatives and farmers have represented a vast part of actual demand for wind power technology in Sweden. Actual deployment is the result of determined developers and turbine suppliers, which has led to most of the expansion until today. However, as wind power technology has undergone significant development projects tend to become bigger requiring new types of locations and supporters, providing opportunities as well as threats for the further deployment.

The recent market reformation in combination with the ongoing transformation process provides new operating conditions for the electricity industry. The recently launched

[30] Ny Teknik (2005-09-20), 'Förlängda certifikat blåser liv i vindkraften'

inducement system puts additional pressure on the electricity producers to undertake concrete measures in making investments in renewable technologies. In fact, in order to avoid monetary penalties, the new system requires them to comply with the political objectives. Nevertheless, as electricity producers operate on a competitive market, their business is about producing electricity in the most cost-effective way and selling their product with the highest margins possible. However, during the last years, electricity prices have increased, which, in combination with the current inducement system, seems to provide better economic conditions for wind power.

Instead of pecuniary problems, the current threat on wind power deployment seems to be about achieving the necessary permissions. In a reformed market, the problem appears to be that individual electricity producers attempt to undertake projects at locations that society for some reason opposes – in turn negatively affecting the deployment of wind power. On the other hand, there is also a negative affect on the deployment of wind power if society directs electricity producers towards locations the electricity producers for different reasons oppose. Thus, the problem appears to be a question of how different stakeholders make assessments and evaluations of different locations.

5 The Fladen case study

"Practice has a logic which is not that of logic"

Pierre Bourdieu

This chapter is the empirical description of the Fladen project; described from the perspective of Göteborg Energi. The chapter starts with a brief introduction of the Fladen project, Göteborg Energi and their previous engagement in developing wind power. Thereafter follows a description of the project, as the project team at Göteborg Energi perceived it; for simplicity divided in different phases

5.1 Introducing the Fladen project

"In contributing to reach global climate objectives wind power production plants in Sweden must be constructed in order to produce as much as 15 - 25 TWh electricity annually; out of which 10 - 15 TWh are likely localized offshore. The explicit objective in Sweden is developing and operating sustainable, resource-efficient and environmental friendly power production. Our desire is to contribute in reaching this objective. The wind power facility we wish to build would double the electricity produced by wind power in Sweden today."[31]

In 2000, the company Göteborg Energi was granted the permission to conduct investigations on Fladen, a shoal bank in Kattegatt, about 20 km outside the Swedish coast. The purpose was to prospect the location of an offshore wind power plant; the result of an idea which had been born a couple of years earlier when one of the Göteborg Energi employees happened to be fishing on the site. Since protests due to of encroachment to the natural landscape is almost the 'normal case' when prospecting wind power plants in Sweden, the idea came up when he realized that land was no where in sight. No one ought to be affected out here, he thought. After a quick look at the sea charts he realized that the depth on the site was in range of present technology and sea bottom conditions seemed favorable. Another contributing fact in strengthening his idea was that the electricity grid in the vicinity seemed to be of sufficient capacity. The only thing in his field of vision was the Ringhals power plant, one of four (at present three) nuclear power production plants in Sweden. After more than two years of internal lobbying, the Board of Directors agreed to go ahead with a formal application for further investigations. The commencement of the application procedure was the formal start

[31] Citation from Internet www.goteborgenergi.se, describing the Fladen project (2004-10-20)

of an almost four-year long process, which ended in October 2004, when the Swedish government rejected Göteborg Energi building permits.

5.2 The company Göteborg Energi

Light, power and heating are all goods our clients need – the present CEO of Göteborg Energi Anders Hedenstedt declares in the annual accounts book of 2003.[32] This statement declares a changed attitude on what the company mission is today, reorganizing from utility provider to service provider. Göteborg Energi is a municipality owned local energy provider, which has provided energy within the city of Gothenburg since the beginning of the twentieth century. Since 1989, the company has been a private limited corporation; part of a group of companies controlled by GKF AB (Göteborgs Kommunala Förvaltnings AB) which is 100 percent owned by the municipality of Gothenburg. The present organization, designed from a process perspective according to the figure below, is the amalgam of three public utilities, prior the fusion operating as individual organizations; providing either electricity, gas or district heating to the inhabitants in Gothenburg and surrounding municipalities (Polesie and Strid 1998).

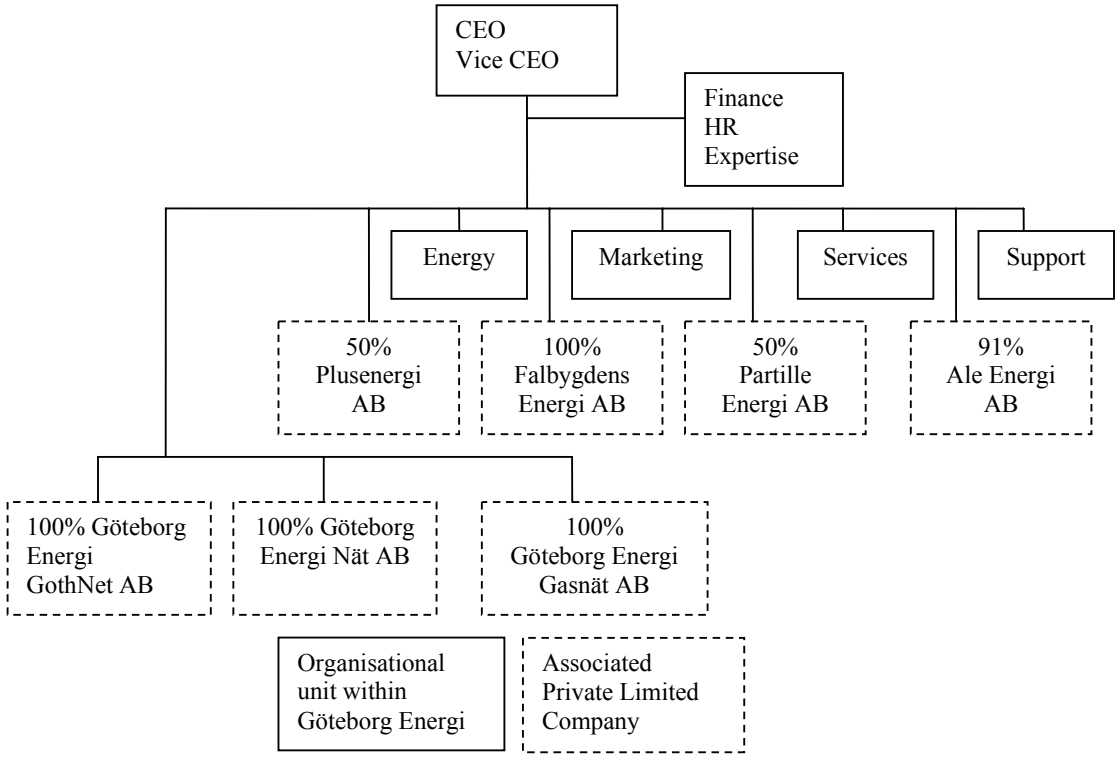


Figure 5-1 Organizational chart of Göteborg Energi
Source: www.goteborgenergi.se

[32] Göteborg Energi annual accounts book 2003, Årsbokslut 2003, p. 8

As a municipality owned company, politicians appointed by the municipal council constitute the Board of Directors. The company has some 1000 employees and an annual turnover of approximately three billion Swedish kronor. Göteborg Energi produces and distributes district heating and electricity. District heating accounts for the vast majority of their production. According to the annual accounts book for 2003 district heating accounted for 65 percent and electricity for 6 percent of the company's turnover. Göteborg Energi also owns the local electricity distribution grid. As distributors of electricity, they function as infrastructure providers for the affiliated company Plusenergi (jointly owned with Vattenfall AB), acting as retailers of electricity on the local market and distributing the electricity in the grid owned by Göteborg Energi.

Göteborg Energi produces district heating in their own production facilities fuelled by natural gas, bio fuel and oil. Furthermore, by utilizing waste heat from local industrial processes they produce additional district heating. Up until now, they mainly have distributed, not produced, electricity. To some extent, this has been troublesome for the company as well as the city of Gothenburg. The electricity production capacity within the city region is weak and if a power failure would occur, it would lead to problems such as disruptions of major public functions. Therefore, the strategic goal has been to increase electricity production, which is also motivated by their intention of becoming a larger actor on the electricity production market.

"Göteborg Energi is a very small electricity producer, implying that the city is exposed to a risk that its inhabitants are probably not aware of. We scarcely produce 5 percent of all the electricity we consume within Gothenburg and that is not even enough to start up the indispensable societal functions, if we have a large power failure. Therefore, our strategy was to expand electricity production."

One example of this strategy is the recently initiated construction of a new production facility, the Rya power plant, which will produce both district heating and electricity and is scheduled to be in operation in 2006. The construction of Rya is in line with their strategy of becoming a more dominant actor on the electricity production market and is therefore of strategic importance for Göteborg Energi as well as for the city of Gothenburg. The company also owns a couple of wind turbines located at the entrance of the harbor in Gothenburg. These turbines only contribute with marginal electricity production, however, they take part in characterizing the company's environmental profile and Göteborg Energi's customers have

had the possibility to buy 'green electricity' for quite some time. Göteborg Energi owns 6½ wind turbines.

Acting as an environmental friendly energy provider is, according to the company, a strategic mission and the wind turbines are part of shaping the company's environmental profile. Since Göteborg Energi would like to be considered as a company safeguarding the environment, a new environmental company policy was presented in 1992, which proposed that the company work for a sustainable energy system. Since 2001, their environmental management system has been ISO 14001 certified and they have used the EMAS[33] model when accounting for the environment.

"Our environmental profile is quite strong…people emphasize this when they visit our webpage…where it is conveyed that we are an environmental friendly corporation. 'Göteborg Energi – For the future' is our slogan you know. A few years ago we changed our logo…the old logo was an encircled character 'E' with three arrows, where every arrow symbolized one of the three different utilities, electricity utility, heating utility and gas utility. The new logo symbolizes that we are more on the offensive, the encircled E is still there but instead there is one arrow pointing forward. The color of the arrow is green, symbolizing our environmental commitment."

5.3 Previous wind power experience

Concerning wind power production, the company has extensive previous experience. For the past fifteen years, they have been the owner of a couple of wind turbines, located in the Gothenburg harbor area, which they also have taken part in building. Actually, their story of introducing wind power in Sweden begins in the mid 1980's; following the failure of the first Swedish wind power ventures. As described above, there was simply no demand for large-scale MW-size turbines at that time since the electricity producers regarded them as too big and too expensive. Therefore, discussions on 'something' smaller that could be managed by other utilities led to an informal inquiry as to whether Göteborg Energi was interested in operating such an installation. They seemed to have been rather optimistic about it; there was even an effort of to launch the production of wind turbines in the city Gothenburg. Blades were to be made at a small yard normally producing pleasure boats, towers produced by

[33] EMAS (Echo Management and Audit Scheme) is a voluntary EU model for environmental management and environmental accounting. Based on ISO 14001 EMAS functions as tool for communication for ISO 14001 certified organizations. http://www.miljostyrning.se/emas/ (2004-11-10)

Götaverken, generators by ABB and gearboxes by KMV. However, the production never became a reality, as one of the employees at Göteborg Energi describes it:

"Well, as you might remember they made boats down there in the marina. Since I had a boat of my own in that marina, I frequently did nightshifts guarding our boats. Sometimes I dropped in at the factory, looking at the blades under construction and chatted with the people working there. They made three blades which where some 25 meters long… today one of them is actually a monument outside NUTEK at Lijleholmen in Stockholm. Anyway, eventually someone decided that instead of developing it was better to buy something already produced instead."

Employees at Göteborg Energi did a quick survey and bought a wind turbine from the Scottish manufacturer Howden, who claimed they had a turbine that was almost finished. However, the Howden turbine had several teething problems and after a while, they decided to dismantle the turbine. The Howden experience serves as an example of how little knowledge electricity producers had on producing wind power electricity. One simply had very little knowledge about the difficulties associated with wind power production, which rendered difficulties when making purchase specifications since no one really knew what to ask for. Thus, instead of making a thorough buying process, one trusted the good name associated with Howden. A former employee involved in this project describes the purchase of the Howden turbine.

"Howden is a very large corporation; you know they made the drills used when constructing the Euro tunnel. Anyway, we considered them trustworthy and since they claimed they had constructed a turbine…we bought it… Well, to be honest, one was not totally in accordance with the truth. The turbine they delivered was an 'almost' finished construction, equipped with wooden blades with a hydraulic devise, which turned the top of the blade… and many other strange technical solutions. Nevertheless, we arranged a site out there at Risholmen and erected the turbine. We turned the key and expressed a delighted 'yes it is running' and the next second it broke down. I think it was a piston for the hydraulics that broke or something….Anyway, there was always some kind of malfunction. There was even a Scotsman from Howden here one whole summer trying to fix all the problems. His family stayed with him that summer and while he was in the tower working all of us involved in the project entertained his family. We took excursions with his wife and his kids were at summer

camp…It was not a success… the blades were always filthy from hydraulic-oil or something…and in the end we got really fed up with it and simply decided to dismantle it."

In spite of this early fiasco, Göteborg Energi did not give up and instead turned their interest towards Danish suppliers. They had a good site for production at Risholmen, located at the entrance of the harbor in Gothenburg, and just needed turbines for production. For example, they bought one turbine from the Danish manufacturer Bonus and erected it in 1993. Göteborg Energi was also involved in forming the cooperative Göteborgsvind, owned by some 3000 clients to Göteborg Energi; the cooperative own four wind turbines, all managed by Göteborg Energi. Göteborg Energi developed in total eleven sites for wind turbines at Risholmen and the nearby Torsholmen and Hjärtholmen. This was a period of trial and error. However, the good results also triggered further investigations on possible sites for wind power along the Swedish west coast; described by Göteborg Energi representatives as a process characterized by careful evaluation of different sites. The wind power venture in the Gothenburg harbor had taught Göteborg Energi to be careful when developing sites. For example, some conflicting interests with one of the museums in Göteborg concerned that wind power located near the Elvsborg fortress might be inappropriate from a historic perspective. They also experienced how nature conservationists tried to stop the siting plans referring to some rare species and ornithologists raged against the site; claiming it to be a threat to local bird-life. Therefore, employees at Göteborg Energi claim they were cautious when looking for new sites. For instance, they say that they had several possible sites under consideration but that they turned them down due to some external factor, e.g. conflicts with telecommunications or possible conflicts with other stakeholders.

"We considered sites on Mollösund and Kråkesundsgap for instance, but there was always a great commotion about something. 'We do not oppose wind power…but it is not suitable here…there are so many other possible locations you might consider' was the normal reactions we encountered."

However, Göteborg Energi's interest in developing wind power was strong and their search for a suitable site continued.

5.4 The Fladen project

As described, siting wind power facilities is something that has been done at Göteborg Energi for some fifteen years. Furthermore, the strategic mission was to increase electricity

production within the company and the city of Gothenburg. For example, the construction of the Rya power plant had been in the pipeline for some ten years, the company was just waiting for the economic conditions to become acceptable. In the midst of it all, the idea of building a large offshore wind power facility materialized.

5.4.1 The birth phase

The idea of building the Fladen offshore wind power plant came from one of the employees at Göteborg Energi. It is almost described as a flash of genius as he was on a fishing excursion when the idea suddenly hit him. The site seemed to be perfect; the wind energy was superior; the depth was in range of present technology; the nature of sea bottom seemed to be attractive; the electricity grid was in close range and gave the impression not to need reinforcement.

"I was out fishing for mackerel and I looked at my sonar and actually saw the shoal bank materializing underneath me. The next thing that struck me was how much stronger the wind blew out here, and then I looked towards land and could not see anything except the Ringhals power plant, which is the strongest grid connection in Sweden."

Employees at Göteborg Energi had made some investigations on other sites prior this idea. However, these sites were turned down because of technical related problems or because they appeared to be in too much conflict with other interests, e.g. some projects were turned down due to risks of bad publicity. The project leader first assigned to the project explains that when he entered the project in 2001, they had already decided that this was the right place as they previously had looked in to other locations. Nevertheless, out there on Fladen, there did not seem to be any conflicting human interests. Another employee who had access to the decision process describes the choice of location:

"You know there was a lot of talk about building wind power. We never discussed Fladen but we had looked in to other possible locations on the west coast. Without consulting the Board of Directors, I turned down a proposed project on Mollön. We received an inquiry about building 12 turbines there but I said no because we would have suffered heavy criticism so it would not have been worth it, no matter what the project's profitability. We would have lost in a greater whole, on sales of district heating, on sales of gas and sales of electricity. However, I did not believe there would be any risks of heavy criticism here, I mean you can barely see Fladen from land, and if there is slightly bad weather you need a pair of binoculars to see it. Half the lighthouse is below the horizontal line…so I did not think

that…well I knew that 'the environmentalists' and the fishermen would put up a fight…but not that there would be any heavy criticism."

Though the site seemed favorable from top management perspectives in retrospective, the idea initially had been met with skepticism; especially from some of those in middle management who said that wind power was not part of the company mission. The internal opposition appears connected with opposing internal interests between different departments, institutionalized throughout the years. Despite the fact that they had reorganized the former gas, electricity and heating utilities into on single organizational unit the invisible boundaries between the departments appears to have prevailed. Though the main conflict between departments appears to have been the hubbub on investment funds, what was communicated internally rather concerned whether wind power was in line with the company mission or not and its associated risk of bad publicity.

"When I first came to the company, the different departments gave the impression that they all believed their department was the backbone of the company; what went on in the other departments was really not of their concern. I find it gruesome how uninterested the different departments were in the business of the others…if one was into gas one was into gas and nothing else was interesting…when discussing investments in one department the other two departments considered that particular investment pointless. It was always internal schemozzle about investment funds…that was one of the good parts about the Rya power plant… it represented both heating and electricity and it was fuelled with natural gas…thus it was a joint project…but Fladen represented only electricity; therefore it wasn't precisely excitative for the other departments."

However, the project was not a result of a general management idea; instead, it was born at lower organizational levels, pushed forward by enthusiasts. Later on, however, the project coincided with managerial aspirations to expand electricity production; but at first, middle management met the project with skepticism. Perhaps their skepticism was also connected to the project initiator.

"You know, he (the initiator) has many slanderers within the organization…mostly because of his wild ideas… but his ideas are often substantial…however when he is the initiator of a certain idea it is not seldom met with skepticism."

Initially two real enthusiasts worked on the project in secrecy, as 'bootleggers'; which they describe as a lot of fun yet troublesome.

"In the beginning, working on the project was underground work. Our bosses explicitly told us that we were not allowed to work on it. However, we ignored that order because we thought the project was very exciting. Somehow, they found out we worked on the project, so once more, one of the bosses summoned us to a meeting and told us not to work on the project anymore. 'Well, what we do on our spare time is none of your business' we said and continued to work on the project once we checked out in the afternoon. This did not make us very popular, I can tell you that for sure, but we believed it to be a really good project. I had made some calculations on the costs and so and came to the conclusion that the project also was very profitable."

The two 'bootleggers' realized that this project was of the extraordinary kind and as such, they had to handle it smoothly within the organization in order to get managerial approval. As one of them describes it:

"You know our CEO at that time wasn't very happy about the project because he considered the project politically controversial. Then this commotion about national planning targets for wind power came up…and he also had green light from the corridors of power…we also had spoken to politicians and received a dressing-down for it…'you're not allowed to talk to them' our boss said…but I mean we are free to talk to whom ever we want…so we met politicians from our Board of Directors but the boss didn't like it and caused all kinds of devilry to make us stop. However, we realized that to get approval for this project required unusual methods…and I figured that when the board finally would make their decision it had to be easier and less risky to say yes than to say no."

It seems as the 'bootleggers' got just the pacemaker they needed. In 1999, the company Board of Directors decided to make strategic investments in electricity production. The Board of Directors believed these investments were necessary for the sake of regional security and the company was of the opinion that a certain production capacity ought to be developed in order to secure production in cases of emergent power failures.

"It was a very easy decision for them to make…that's how you have to arrange it…make them believe it was actually their idea…and that's what we did. We made it appear as the idea came from them so they could take credit."

In addition, what seems favorable for the decision to proceed with the Fladen project is that, for more than ten years, the company had had the permission to build a combined heat and electricity plant, the Rya power plant, but it seems they had some difficulties connected to the project, e.g. project economics. Accordingly, for some time, they had been lobbying at the state department to make the economic conditions right for the plant. However, this was a slow and enduring process.

"You know, within the energy sector, the whole question is about how to handle taxation, that's what determines the economy of a project. Therefore, I had been bustling about like mad on the State department of finance to try to influence them to change the prevailing rules on taxation for combined heat and electricity production, but it was a really slow process."

Under any circumstance, the board decision in 1999 concurred with the idea of constructing the Fladen project; therefore, in line with the company strategic mission. In practice, among many things, this meant the 'bootleggers' no longer had to work in secrecy. Besides the project's compliance with the company strategic mission it seems it was also interesting from other perspectives.

"You know he (the project initiator) came in to my office one day and said 'I've been thinking about producing wind power', he is a person interested in boats and knows a lot about the west coast, 'and the superior site for offshore wind power on the west coast is Fladen.' 'Well, maybe so', I said. Anyway, he had been sketching on a proposal for the project and I found it to be quite reasonable. Fladen is one of the few shallow banks I have visited a few times myself, and even if it is 16 Nautical miles from where I live to the Fladen lighthouse I only see it in clear weather, so I became a little hooked on the idea. Therefore, I commissioned him to undertake further investigations, outlining whether it was possible at all concerning water depths and sea bottom structure and so on. He is a strenuous fellow and he was out there, making informal inquiries, and came across some interested parties…Varberg Municipality showed some interest and Kungsbacka Municipality did not even react at that moment…"

These initial investigations undertaken by the project initiators turned out favorable. The next step was to apply for the permission to utilize the area for investigations, which was granted the beginning of 2000. Actually, the 'bootleggers' had already made the application via unconventional maneuvering; they simply made another boss sign the application one day their ordinary boss was out of office. Naturally, this caused internal commotion because the

local press found out about the application and published a story on it. As one of the 'bootleggers' describes it:

"No one at Göteborg Energi knew about the application so ironically, the phone call from the newspaper was connected to my office. 'Well, I said, you know we are working on some arithmetical problems with Chalmers University of Technology and that is why we made the application'. Of course, the newspaper did not buy that explanation… and once more, our boss was very upset. 'Well it is just an application for right of disposition' we said,' anyone could get that'. 'But it is in the name of Göteborg Energi' the boss said. Therefore we made an extra application as private persons and received the same permission."

Early consultations with military authorities and people from The Maritime Museum followed the approved application for rights of disposition. Though there seemed to have been some initial opposition, they formally raised no objections to the project. This formal 'go decision' from military authorities was crucial for the future life of the project. If they had said no, there would not have been a further point in continuing the project.

As the internal lobbying for the project continued, signals from outside contributed to strengthen the project and the opinion that the site at Fladen was an optimal location for such a project. Two important signals from outside appears to be:

1. A report from the Swedish Energy Agency which in an unofficial map pinpointed Fladen as one of many suitable sites for establishing offshore wind power and

2. The participation at a hearing, held at the Industry Department.

One of the project team members explains the changed attitude from external rather than internal forces.

"You know these turbines in the harbor only produce marginal output…and I mean not only thirty years ago confessing that you engaged in environmental issues was something bad. But once one realized this was large scale production…and it became an issue of national concern… signals from the government indicated that this was interesting…this made them change their minds about the project."

The CEO at Göteborg Energi participated in a hearing on offshore wind power held by the Swedish Minister of Industry. Prior to the meeting the project initiator briefed the CEO about

the project. Thus, he was well prepared and could actually present a tangible proposition at the hearing. Participants at the hearing consisted of the major electricity producers, wind power developers, suppliers and several civil service departments.

"They called for a meeting at the Department of Industry. I believe we were some twenty people there from the industry and different authorities. Among one of them was the director general of The National Board of Housing, I remember her because she took great interest when I presented our project, she is from Varberg you know. Anyway, as I recall it, she presented a positive attitude towards the project. In total, there were very constructive attitudes on our project…well you will never get a 'go signal' from any politician at such a meeting but the feeling I had told me we were on the right track. The Minister of Industry expressed that the projects presented at the meeting could in fact be the opportunity to reach the 10 TWh wind power objective. What I specifically recall from this meeting was that it reinforced my opinion on the Fladen project."

There appears to have been a constructive attitude on wind power as a future energy source at the meeting. There were also representatives from the wind power industry and suppliers to the energy sector; among them ABB who at that time was developing the 'Windformer'[34] project; which they at that time claimed would revolutionize wind power production. The windformer project received several million Swedish kronor in grant for research, e.g. from the Swedish Energy Agency. In the end, however, they had to terminate the project due to financial as well as technical problems. However, at the time for the meeting the 'Windformer' technology was believed to change wind power production.

"After the hearing some of the participants lingered in the corridors…I think it was the Minister's State Secretary and a guy from ABB…they were really keen on delivering equipment to us…and had really positive attitudes…and I knew that if the government was serious with this 10TWh target one had to increase the pace and actually start producing sites…you know 10TWh is a hell of a lot wind power constructions. The first step then was to utilize sites that were economically viable and within technical range."

Strengthened by the positive feedback from the hearing the CEO was enthusiastic as he returned. His opinion was to push the project forward and the project gained the internal

[34] The Windformer project was an attempt by ABB to construct a turbine, which was claimed to have a 20 percent higher power output than conventional technology (Bergek 2002, Paper III, p. 30). The technology was a further developed hydropower turbine, adjusted for wind power production. The idea was to avoid transforming the electric current before distributing it in the electric grid (Rönnborg 2003, p. 39).

legitimacy needed. The first step was to formalize the project and appoint a project leader and by the beginning of 2001, the CEO assigned a project leader. The appointing appears related to problems connected with the construction of the Rya plant, which came up when Göteborg Energi, in 2001, applied to prolong of the permissions for Rya, which they originally received in 1991. The Swedish Society for Nature Conservation (SSNC) appealed the prolongation of the permissions, and still three years later, the issue was not settled. Anyhow, the project leader of the Rya power plant was appointed project leader at first, however later replaced by another person. This formalized the project and the initiators no longer had to work on the project in secret. The CEO instructed the project leader to prepare material for the board and the decision-making process to come. In addition, the project team formalized a joint venture between Göteborg Energi and ABB and Nordex, with whom the 'bootleggers' had already made contacts. However, at that time, they were more informal as the project initiators had contact with them in their spare time.

"He (the Rya project leader) worked on the Fladen project for a period; I believe he made the foundation for the work we did in the Board of Directors. The reason I appointed him was that he had initially been appointed to the Rya project; however, the Rya project was making really slow progress, it was 'no go' on all kinds of levels, delays, delays, delays. And you know he is a really good guy and I had to present something concrete and good that he could work on… so I asked him to run the Fladen project until we had a breakthrough on Rya. The agreement was that he then should run that project instead…and that is how it turned out. Later on when Rya was brought up again, as you know, we appointed another project leader."

The employees involved in the project at Göteborg Energi had the feeling that the company were on the right track and the project was moving into a new and more concrete phase. Many believed that the successful meeting at the Department of Industry was the turning point of the project, exemplified by the citation below.

"You know, he (the CEO) played the part as the first pilot at that meeting and that must have been really exiting because when he returned he was full of enthusiasm."

In addition, all the calculations presented a profitable project. However, they used different methods making their economic evaluations. For example, one of their calculations, based on the NPV method, showed a positive NPV of approximately 983 million Swedish kronor when using a 5 percent discount rate. Though they calculated with a 15 percent investment subsidy,

the project would have been profitable even without it. Another calculation described a 22 percent return on equity. However, the importance of calculative accuracy seems to have been of little importance in pushing the project forward; the project members' notion as to whether the project was profitable or not differed. They also describe how they made calculations differently, e.g. some of them refer to 5 percent yield and requirement of payback in 8 years while others refer to 7 percent yield and payback requirement of 10 years. One of the project team members describes it as follows:

"We made some calculations on the project using a 7 percent yield and a payback requirement of ten years, which indicated that the project would not meet these requirements…but you know… many years were spent on analyzing whether to build the Rya power plant or not…we have had the necessary permits for Rya for over ten years and we still haven't built it. There has always been some problem with the financial parts of the project…taxes and so…and now finally, when everything is in order we started building it. Finally, it has become financially viable to build the plant. When it came to Fladen it was the same situation…if we could have got the necessary permits for Fladen… that would have been a progressive step…then we could have let it be a dormant project until it met the financial requirements."

Yet, another team member describes another picture: *"If I recall correctly there was no doubt that the project would have been profitable over a period of ten years. I think we used a 5 percent yield and calculated with 0.25 Swedish kronor revenue per kWh and added the revenue for green certificates on top of it…and today the revenues for electricity are some 0.30 Swedish kronor per kWh…so it would have been an excellent deal."*

They explain this pragmatic approach on the importance of calculative accuracy as related to what they describe as inconsistent energy policies.

"The risks when constructing energy production facilities are environmental impacts and the instability in taxation. During the last twelve years there have been 48 changes in taxation…how the hell can accurate calculations be made under such circumstances… you have to roll the dice and take a chance…and when we evaluated this wind power investment we figured it a foolproof investment if you evaluate it from environmental and operating perspectives."

At this early stage, however, there were some signals of local political opposition to the project. However, in spite of the political opposition in the municipalities involved, the company pushed the project forward. It seems as if Göteborg Energi had not expected such heavy resistance; after all, the project site was about 20 kilometers from land and the electricity grid was already in place.

"It was not oil rigs that we wanted to build…and we would only utilize 20 percent of the area… we would not have used more. I mean 80 percent would have been unmolested… and another very strong argument, which I emphasized, is that everyone who builds wind power runs into trouble with the grid owners since the local grid seldom bears the load from the turbines. It is a strike of luck that the closest tongue of land is Ringhals."

Göteborg Energi representatives had several meetings with representatives from the municipalities but they never succeeded in convincing them that Fladen was a win-win project. For example, politicians representing both Kungsbacka and Varberg questioned why Göteborg Energi did not locate the project within the boundaries of the municipality Göteborg, and Göteborg Energi representatives speculate about their objectives for opposing the project.

"You know it appears as the municipalities encircling Gothenburg have a complex about their relative size compared to Gothenburg. The closer you come to Gothenburg the more obvious their complex becomes…they often show their claws…for instance Kungsbacka seems to be a municipality suffering from its closeness to Gothenburg. You know they voted not to be part of the Västra Götaland Region…they were invited…but they voted against it and I believe they regret that now."

Instead of being a warning flag, the local political opposition seems to have strengthened the company efforts to push the project forward. Though this might seem strange, there was a history of events, which had taken place between Göteborg Energi and Kungsbacka municipality, preceding the plans of developing Fladen. Some years before the decision to push Fladen forward, Göteborg Energi was the runner-up when bidding on the municipal energy provider Kungsbacka Energi. The lost bid seems to have been a source of annoyance within Göteborg Energi. Though no one has officially claimed that this in any way affected the decision to push Fladen forward, some information points in that direction.

"We made an offer on buying Kungsbacka Energi…some of the Conservatives in their board wanted us to link up the district heating systems between the municipalities. You know, the

municipalities Göteborg and Mölndal are already connected and we deliver district heating further south towards the town of Lindome… And since we deliver district heating there, we might as well deliver district heating all the way down to Kungsbacka…also they had decided they wanted to sell Kungsbacka Energi… so we made some calculations on this deal and presented an offer… You know Kungsbacka Energi was a disaster…down the drain… Anyway, we offered 200 million Swedish kronor and added broadband connection on top of it all…which we valued to approximately 15 million Swedish kronor…in total 215 million… Nevertheless, we never got the deal. Instead, they sold Kungsbacka Energi to Sydkraft for 208 million. Later on, I met one of the Kungsbacka Municipality politicians and asked how they had evaluated our offer. He said that they would not have sold the company to us no matter what the price. Because, he said, we were a municipally owned company and sooner or later we also would be sold off; and then Kungsbacka Energi would have been sold off once more and then the residents in Göteborg eventually would make money on such a deal since they owned Kungsbacka Energi…and that was something they never could accept."

Later on, when presenting the Fladen project for one of the municipalities, some local politicians' unwillingness and stubborn attitude on wind power appears interpreted as provoking. Their reluctant attitude, in combination with the frustration over the lost deal, appears to have added force to the determination within Göteborg Energi to push the project forward.

"After some time I met the former Chairman of Kungsbacka municipality and his opinion that 'there never will be any wind power in my municipality' pushed me a little more. He believed Kungsbacka municipality was 'him self' you know, he was a dimwit, and since 30 to 40 percent of the Fladen area is located in Kungsbacka this annoyed me and that pushed me even more and I thought let's push this forward I'll show him…"

5.4.2 The Pre-Application phase

In May 2001, the Board of Directors decided to take further steps in investigating the possibility to build *one of the largest wind power plants in the world* (emphasis added). The board made a proud announcement, communicated via a press release; 'Göteborg Energi takes another step towards sustainable energy solutions', was the headline. At a board meeting in Denmark, in the end of May 2001, they made the decision to push the Fladen project forward. At this meeting, the board discussed issues such as; shall we engage in large-scale wind power venture; how is wind power affected by initiated emissions trading program; if we do

not build wind power in the Kattegatt sea will someone else build there; is wind power part of our environmental profile? At the meeting, the CEO presented a document describing the Fladen project for the board, which implied that the project was profitable and that it fit into the company strategy. The document gave the impression of a viable project, resting on three foundations, which would provide the requirements necessary for being more successful compared to other wind power projects:

1. The site was located at a long distance from land and in shallow waters; minimizing risk of interferences and simplifying installations.
2. The largest high-voltage electricity grid in Sweden was in the proximity; minimizing costs for grid reinforcements.
3. The extremely favorable wind conditions in combination with the location in the southern parts of Sweden where need for increased electricity production is greatest.

The description of the projects' financial aspects was a profitability calculation; presenting an annual profit of 52 million Swedish kronor, subsidiaries and certificates included. However, revenues from subsidiaries and certificates accounted for as much as 66 percent of total revenues. Without this contribution, according to this calculation, the project would not have been profitable; instead of the 52 million kronor profit, it would have been a yearly loss of 2 million kronor. However, in a sensitivity analysis, they argued that revenues from electricity production would almost cover cost of capital and cost of operations. Furthermore, they figured it was unlikely that the Swedish government would cancel all subsidiaries since they believed it would bankrupt every wind power facility in Sweden; this could not be consistent with political aspirations they figured. Still it was important that the project, when scrutinized by the board, was economically viable.

"We are owned by the municipality and we are their best cash-cow… and they want us to deliver a certain amount of money… and at the same time we must be caretaking and sustainable…so we have to live up to all these demands... Therefore, a project such as Fladen must comply to these demands…there is no way that we would undertake such a project if it wasn't strictly commercial."

In addition, the board was under the impression that the environmental impact related to offshore wind power was marginal. The Danes had demonstrated their facility to the board, and according to the Danes, the marine life made a quick recovery and the sea bottom had reverted. The projects' environmental profile, capacity increasing and auspicious economic

valuation made the decision easy. A unanimous board approved the project and granted a project budget, at first a sum of one million Swedish kronor for pre-investigative actions. In retrospective, some perceive the board decision as smoother and quicker than expected.

"Actually, I expected more questions from the board members…this was totally different compared to the discussions we had concerning the Rya power plant…when discussing Rya the Green Party wasn't entirely enthusiastic and resisted, they asked all kinds of questions and asked for more information and never really took a definite position…however concerning Fladen this was not the case. Everyone was in on it…that's how I recall it."

There was no opposition at all among the board members, it seems. Further more, the Fladen project stands out as sanctioned from the highest levels within the Gothenburg Municipality.

"When I had an occasional cup of coffee with the Chairman of the Gothenburg Municipality we used to discuss different issues. I told him about the project and he became very interested and asked if we could undertake it, and I said yes… well go ahead he said… You know if you have an agreement with him, there is very little risk that anyone representing the owners will stab you in the back even if something becomes costly. Besides, one should be very aware of the fact that a company such as Göteborg Energi is exposed to very little risk. The risk associated with its business processes is almost zero… I mean the district heating is up and running and what could cause that process from stopping… a situation where all the customers suddenly ran off… That is very unlikely…You know the past fifty years we have lost one 'big' district heating customer and that client in turn lost a lot of money. When evaluating expanded electricity production, we saw the same scenario… It was definitely profitable… but you know it is all about what time horizon one has when making such economic evaluations. If I recall correctly, there was no question that Fladen would have been profitable in ten years… and I believe we calculated with something like a 5.5 percent yield."

Though it appears as the political consensus on the project prevailed in the municipality Gothenburg and at Göteborg Energi, they did not share this consensus with politicians representing the municipalities in Kungsbacka and Varberg. As described, there were some early signals of local political opposition in both Varberg and Kungsbacka.

The pre-application phase was the start of a period characterized by consultation meetings and inquiries. In August 2001, the project team held early consultations with the county administrative board in Halland; at which they discussed issues of mainly technical character,

however the county administrative board raised some early warnings on the environmental impact associated to the project and stressed the need to conduct further investigations. In addition, the county administrative board communicated possible objections from local fishermen. Further, there were some brief comments on an ongoing investigation on shoal banks initiated by the Swedish Environmental Protection Agency. After the meeting, managers at Göteborg Energi decided to proceed with a formal application to build the plant. Again, Göteborg Energi communicated their decision with a press release, published in September 2001. According to Swedish Law, prior to the filing of such applications to the Regional Environmental Court, the applicant must make deeper consultations with stakeholders. Thus, the decision to undertake the application was the start of a thorough consultation and investigation process. Swedish Law postulates consultation meetings with all relevant authorities and stakeholders in combination with all who may possibly be affected by the construction. For almost a year, the project team made investigations and held such consultations with a number of different stakeholders. This included representatives from many different actors, e.g. the municipalities involved, the Swedish Environmental Protections Agency, the county administrative board, the public, representatives from local industry, The National Board of Fisheries, The National Board of Housing, the Swedish Maritime Administration, the Swedish Coast Guard, representatives from regional and local fishermen, electricity grid owners, Svenska Kraftnät, Swedish Society for Nature Conservations, representatives from boating organizations and so forth. In total, the project team held twenty-five different consultation meetings and in mid-2002, Göteborg Energi formally applied the project at The Regional Environmental Court.

The political wind power aspirations were extensive at this time. For example, the government proposition on energy policies presented in March 2002 declared increased efforts to expand wind power production. In addition, the Swedish Minister of Industry conducted the formal opening of an offshore wind power facility in Kalmarsund where he also spoke favorably about the future for wind power in Sweden. This seemed like an advantage to the project. However, the pre-application period also seems to have been a frustrating period for the project team members as they confronted various opinions they had to look into.

"There are always people safeguarding special interests, that's a part of the process…it's just that…when it concerns issues such as migratory bats moving from Sweden to Denmark…and

how the rotor-blades' reflection of light on the surface of the sea affects fish in the water…these were some of the issues we had to deal with. Issues almost impossible to investigate, how do you study how fish react to reflection of light?"

They sometimes had to make unconventional solutions in order to gain approval from different authorities, as they perceived some authorities presented reluctant attitudes on the project. The citation from one of the project team members exemplifies their feeling of frustration due to bureaucratic processes and disinclined civil servants.

"We had to deal with a number of different authorities…blockheads…the Swedish Environmental Protections Agency even asked us to move the site further west, towards Denmark. When we explained that it was impossible because the site would then be in the middle of the fairway T-route, which is the main fairway in and out the Baltic Sea, they actually suggested moving the fairway. When we discussed this idea with the Swedish Maritime Administration, they laughed so hard they almost cried. The Swedish Coastguard was also reluctant, until we presented the possibility of placing radar on the towers on the north and south part of the facility, which gave them an option of full coverage of all naval traffic in that area. The county administrative board wanted us to map out the entire sea bottom using camera and sonar equipment… they knew nothing about the sea bottom conditions but wanted to know everything…so we had to use very advanced sonar to make two-dimensional measuring, which in practice meant that we needed additional permits because the results from such investigations are top-secret. We had to sign all kinds of documents assuring that we would not forward any of the information gained from the investigations to anyone."

As the process moved on, and additional consultation meetings were held, the project team members were confronted with additional questions and issues, which they had to analyze. Providing trustworthy answers to some of the issues does not appear to have been an easy task. However, as the applicant is required to prove that the applied project does not represent any negative environmental effects they certainly had to undertake serious investigations in order to present credible explanations. One issue emanated from a request to investigate how noise from the not yet constructed turbines would affect fish.

"We were asked to investigate how fish would perceive and react to the noise caused by the turbines. How on earth do you get hold of such information…well I found some pretty good research on this topic, made in Scotland by the way, how fish perceive noise… the problem

then was to find out how much noise the turbines actually make. Then I came up with the idea that the Navy and their submarine fleet when testing their sonar equipment must have been interested in this kind of noise…so I called a contact of mine working on the Elforsk project who had contacts within the Navy and he provided me a contact. Anyhow, I called a person at the military headquarters and asked if they had made any sonar surveys…and he said 'yes but that is classified information'. 'Look' I said, 'as an officer in the Swedish armed forces I completely respect the fact that the information is classified but I really need that information'…later on he called me and said that 'you probably understand we can't send you this information through e-mail or company mail, but what is your home address' he said. After a few days, I received a CD, mailed to my private address, and got all the information I wanted and found it very useful. I did send him an e-mail in which I wrote 'Thanks for the present; I have placed it in the poison cupboard."

Returning to the consultation meetings, the project team knew the Swedish Environmental Protections Agency (SEPA) was an important actor, with which they had to consult. Therefore, they invited them to consultation meetings. However, SEPA did not respond to any of the invitations. What the project team perceived as unwillingness to respond to these invitations was a source of irritation.

"It was almost impossible to meet with them. We went up there (to Stockholm) to meet their representative and instead we met a subordinate. This happened all the time…we wanted to give them information but SEPA continuously refused to meet with us."

At an annual conference on energy[35], one of the project members asked a SEPA representative, whom was making a presentation at the conference, how one should interpret total silence from invited stakeholders. The representative answered that one could only interpret such silence as if the stakeholder had no interest in the matter. 'Good' said the project team member, and continued, 'the stakeholder not answering our invitations is the Swedish Environmental Protections Agency. By the way, there will be a meeting next week, however we still do not know if you have plans to attend it'. According to participants at the conference, the audience started laughing and the representative left the scene.

After all, the project team realized that they had to consult with the Swedish Environmental Protections Agency, especially since it is a legal requirement, but they were concerned about

[35] Energitinget, a conference arranged yearly by the Swedish Energy Agency

the slow progress. They then decided to undertake a rather unconventional action. In December 2001, they mailed a letter to the Swedish Energy Agency, the Swedish Environmental Protections Agency, the National Board of Housing, the Ministry of Environment and the Ministry of Industry. In the letter, they proposed the formation of a work group with the purpose of developing an efficient handling of their application[36]. Whether the application was approved or not was not the issue, instead the project team emphasized that their ambition was to contribute to the transformation process and if the application was not approved they could invest resources elsewhere and if the project was approved the approval would be based on latest technology. The project team presented the work group as a win-win situation for all those involved. The Swedish Environmental Protections Agency, claimed by the project team as the only addressee to reply, retorted that they were not interested in such a proposal. However, they acknowledged the prior invitations to consultations and claimed they would present a formal reply in January of 2002. They also attached a report that had been accounted for the Swedish Government the day before they presented their answer to the project team. The report was part of a governmental assignment to investigate the establishment of wind power on shoal banks along the Swedish coast. In total, the report commented on twelve different locations[37]. Out of these, the Swedish Environmental Protections Agency classified four to be of *very high environmental value* (emphasis added), one of them being Fladen. These four areas where suggested to be assigned protection, either as Natura 2000 or Baltic Sea Protective Area (BSPA). Therefore, they stated that Fladen was not appropriate for wind power development. Furthermore, the report stated seven other locations to be of *high natural value* (emphasis added) and that further investigations were needed in order to evaluate their status as suitable locations for wind power. One of them, Groves Flak, is connected to Fladen[38], which caused raised eyebrows among the project team members at Göteborg Energi since Groves Flak is within the Danish Economic Zone; therefore problematic for Swedish developers. When consulting the sea charts, there appeared to be no clear-cut boundary between Groves Flak and Fladen, the two areas appear separated

[36] Among developers and electricity industry criticism on the slow and bureaucratic handling of applications has been raised throughout the years. This has created a situation that is sometimes very contra productive. Since there has been tremendous technology leaps within the wind power industry and applications processes can proceed over years, in the end if an application finally is approved the technology might be obsolete. The technology applied for may no longer be the most economic and in some cases it is not even manufactured any longer. Then the application must be renewed based on the new technology at hand. Naturally, this further delays the process and imposes additional costs on the applicant.

[37] The investigation "Marina utsjöbankar – Kunskapsöversikt och biologisk värdering" was a literature study conducted by Marine Monitoring and the department of Marine Ecology at Göteborg University.

[38] The shoal banks Fladen and Groves Flak are separated on sea charts by the T-route, which is the fairway utilized by shipping to and from the Baltic Sea. Groves Flak is located in the Danish Economic Zone and Fladen is located in the Swedish Economic Zone.

only by the EEZ[39] border and the T-route fairway. The fact that Groves Flak is outside the Swedish Economic Zone seemed to be overlooked by the Swedish Environmental Protections Agency and the Swedish Energy Agency. This reinforced the belief within the project team that the authorities did not know what they were doing, exemplified by the following citation.

"They have no clue what so ever how society works. It is intimidating that civil servants appear to be so incompetent. To get rid of a problem they suggest us to locate our facility in another country. Another authority suggested that we should locate it in the T-route fairway…are they serious…did they not realize this would have caused an international conflict…I mean, between 1200 and 1800 every war in Northern Europe concerned the power over trade routes in and out the Baltic Sea. If we had blocked the only fairway, Russia would have declared war on us. They have invested huge amounts in their oil exporting Baltic Sea harbors…how many super tankers per day do you think use the fairway?"

During this phase of the process, it seems as if the persons connected to the project developed a distrustful relationship towards the authorities involved; particularly concerning the relationship with the SEPA. In written letters and at the consultation meetings SEPA strongly objected the project and claimed that the document describing the project was incomplete. When asked on what facts they based their opinion, they were perceived as being very vague, though they claimed that alternative sites had not been thoroughly investigated. However, the project members seemed to have made the judgment that the opinions presented by SEPA could not be taken seriously, simply because they were regarded as incompetent. For instance, the fact that the Swedish Environmental Protections Agency suggested alternative sites such as Groves Flak, Stora Middelgrund and Röde Bank really made the project members shake their heads. Groves Flak and Stora Middelgrund are mainly located within the Danish Economic Exclusive Zone and the water depth at Röde Bank was at least double the depth at Fladen.

"SEPA's opinions are not consistent…I mean when they considered the proposal for 10 TWh wind power they claimed that it instead should be 30 TWh…and then, when we present the best location possible they oppose it… It is my beliefs that they reply with a 'no' by default without actually considering the consequences…I do not hold a high opinion on their competence, that's for sure."

[39] Economic Exclusive Zone

In reviewing the Swedish governments proposition (Näringsdepartementet 2002), it is clear that many of the regulating authorities to which the proposition was referred for consideration, among them SEPA, concur with the suggested planning target for wind power. SEPA even added that a higher long-range goal was worth aiming for (p. 98). Furthermore, the proposition describes the intention to emphasize wind power in balance with other interest. It further describes that the Swedish Energy Agency (SEA) during 2003 intended to pinpoint areas of national interest for wind power, according to environmental legislation section 3 (p. 99). As described above, SEA had already indicated that Fladen was a potential location in a report from 2001. In 2003, the new SEA report on areas of national interest suggested that slightly more than half of the planning target should be located offshore. Furthermore, the report indicated that if a certain location was a Natura 2000 area this did not automatically exclude it as an area of national interest for wind power. On this particular issue, SEPA and SEA represented completely different opinions.

5.4.3 The Application phase

Once the formal application had reached The Regional Environmental Court all communication with the different stakeholders went through the court. This meant that the Court referred the formal application for consideration to all the stakeholders involved. They then had the opportunity to respond and request further elucidation. In short, this meant that the Court asked all stakeholders if they thought all necessary investigations had been undertaken or if complementary investigations should be made. Several stakeholders requested complementary information among one of them the Swedish Environmental Protections Agency. The Court then sent a request to Göteborg Energi; requiring the project team to undertake further inquiries, which was done during the last part of 2002. Once more, the Court referred the supplements to the stakeholders and they were once again asked whether they considered the application satisfactory or not. Some stakeholders still had objections and asked for further complementary information. However, the conclusion among the team members was that no more investigations were to be undertaken. Instead, the project team members in written text commented on the different standpoints, which they filed to the Court.

"We did a lot mapping… investigating all kind of issues…but it was never sufficient information…there were always some new endangered species…what will happen to this crab or what will happen to that ray…I mean we have a limited budget. We cannot investigate everything… still it is my opinion that we made a thorough investigation. You know, when

making such an application you are required to compare alternative locations…that's the whole point…because the facility you are applying for should be located at the best place and for that reason we compared a few dozen locations."

According to the team members, they had made a thorough investigation of different alternatives, which included a silent process within the company over the years. Once the idea of Fladen became internalized they were convinced, based on business logic, that Fladen was the optimal site. In order to convince the stakeholders and the surrounding world that they were correct, they used a model developed by the Swedish Energy Agency ranking the different alternatives; again Fladen scored best. When different authorities and stakeholders confronted them with the assertion that they had not evaluated alternatives properly it seems as they dismissed these assertions as idiocy. Why should they undertake investigations on locations where the water depth was out of technical range or on locations with weak electricity grid? Why should they undertake investigations on locations outside the Swedish Exclusive Economic Zone? The notion among the team members at Göteborg Energi was that these locations could be dismissed in terms of business logic; the costs associated with the construction on the alternative sites simply did not fit in the economic frame. The employees at Göteborg Energi believed that if the political intention to increase wind power production to 10 TWh by 2015 was serious one had to make the necessary constructions on economically viable locations. In this case, they believed the signals on wind power from what they refer to as 'higher levels' were stronger then the signals on environmental protection from 'lower levels'.

In summer 2003, the Court announced the application and presented the date for the court proceedings to follow.

5.4.4 The Proceedings phase

The court proceedings took place during two days in autumn 2003. On the first day, representatives from Göteborg Energi together with their project business partners presented their organizations; gave a background description; and presented their motives for building the Fladen project. Thereafter, the attorney representing Göteborg Energi gave an oral description of the formal application. The presentation was complemented with a film on how offshore wind power plants are constructed. Briefly, the attorney based his argumentation on

energy policy objectives[40] stating that the overall objective is to increase electricity produced from renewables with 10TWh by the year 2010, complemented by a special national planning objective for wind power. The objective was to make plans for an additional 10 TWh wind power by 2015. According to the attorney, the national planning objective was to be viewed as an expression of the level of ambition to create opportunities for wind power establishments in the future. In addition, the attorney referred to a report published by the Swedish Energy Agency stating that out of the 10 TWh wind power electricity half of it must likely be produced in off shore facilities near the Swedish territorial waters border. The same report further states that when evaluating sites that might be of national interest for establishing wind power, no site ought to be excluded by the fact that it is comprised, or suggested to be comprised, by Natura 2000 regulations. Instead, the attorney stated, when evaluating such sites the purpose of the Natura 2000 should be put in a context of how an establishment of a wind power plant affects the site as a Natura 2000 area. The attorney representing Göteborg Energi was also of the opinion that in spite of the stakeholders' negative attitude on the subject there were clear and distinct signals from higher levels encouraging business organizations to seek out adequate sites and apply for approval of constructing wind power plants as the one in question. Another argument was that in the evaluation of different locations, based on a model developed by the Swedish Energy Agency, the proposed location ranked as number one. In addition, the attorney presented environmental arguments supporting their project. By replacing coal-heated production facilities, he claimed the Fladen project would lead to decreased emissions; estimated annual reduction of emissions was 415' to 830' tons of $C0_2$, 600 to 1200 tons of NO_X (Nitric Oxide), 360 to 720 tons of SO_2 (Sulfur Oxide) and 80 to 160 tons of VOC (Volatile Organic Compound). The attorney presented a calculation of the total economic value of reduced emissions; based on a report from the Swedish Institute for Transport and Communications Analysis (SIKA) using the models 'ASEK'[41] and 'ExternE'[42]. These calculations estimated a societal cost reduction of 744 780 000 Swedish kronor annually (using the lowest levels of emission reductions). What the attorney did not cover at the court proceedings was the societal costs related to the project. If there had been final approvals for the project, there would have been societal costs related to the project; however, these were not calculated. In terms of project financials, the estimated project costs were nearly 2.7 billion Swedish kronor

[40] Mainly Government proposition 2001/02:143, but also propositions 2001/02:55 and 2002/03:4 were referred to.
[41] For further reading on the ASEK model see SIKA Report 2003:3 (In Swedish)
[42] For further reading on the ExternE model see Nordleden (2003) 'Slutrapport för etapp 2, (pp. 329-335, in Swedish)

with an annual gross cash flow of 324 million Swedish kronor (when producing 0.6 TWh annually). The attorney pointed out environmental effects, however at the same time defused them by pinpointing the projects' positive environmental effects.

On the second day of the proceedings, the representatives of the different stakeholders presented their standpoints. The organizations represented were the municipalities involved, the Swedish Environmental Protections Agency, the county administrative board, The National Board of Fisheries, The National Board of Housing and the World Wide Fund for Nature (WWF). Though all stakeholders presented a constructive attitude on wind power, all of them opposed the Fladen project. Though they all presented their different opinions, they all appear to be influenced by the standpoint held by the Swedish Environmental Protections Agency.

The Swedish Environmental Protections Agency rep presented their task, which is to work for the transition to a sustainable society. Although they support wind power they must also work for the preservation of natural values and species. In short, they promote construction of wind power plants but the most valuable locations must be preserved. Their opinion was that there were four sites along the Swedish coast of particular value and Fladen was one of them. Though they were aware that unaffected marine areas did not exist, they stressed that Fladen was relatively unaffected and rich in species. According to them, the three strongest threats on the marine environment were nutritive salt, toxics and physical disturbance such as construction of wind power plants. They claimed that the stress on the marine ecosystem was more intense the closer to land. Thus, as distance to land increases, shallow banks, such as Fladen, might function as refuges for endangered species; creating spread effects on the ecosystem closer to land. Their opinion was that a construction like the one proposed demands a thorough investigation of alternatives and that Göteborg Energi's disposal of alternative sites were ill founded, e.g. Göteborg Energi's disposal of some alternative sites because of problems due to closeness to navigation routes was not shared by SEPA. On the contrary, SEPA claimed nautical and energy interests could be coordinated. The SEPA rep strongly objected the location of the Fladen project because, she claimed, the high environmental values from national as well as international perspectives were endangered. Fladen was considered a Natura 2000 area and according to the SEPA rep, Fladen was of such importance that it ought to be classified as a marine nature reserve. Further they stated that according to Swedish environmental law section 3 § 6 the area was of national interest for

nature conservation and outdoor life. Also, since the area was suggested as Natura 2000 and as such of national interest according to Swedish environmental law section 4 § 8, the construction could not be allowed.

The National Board of Fisheries (NBF) representative stated that the site was an important spawning and maturity area for many different species. In addition, it was an important area for food search for many species. The strong angling and professional fishery were also important interests to take under consideration, they claimed. Regarding the fishing culture, the site was of national interest. It was claimed that the opinion of the NBF was that the impact on fish and fishing from offshore windmill farms ought to be thoroughly investigated before any constructions could be undertaken and that there were essential knowledge gaps to fill. For example, they stated that though Fladen is in close range to one of the busiest navigation routes, the construction would bring new noise to the site. A noise of which there was little knowledge.

The remaining stakeholders mainly shared the opinion held by the Swedish Environmental Protections Agency. The people representing the National Board of Housing referred to a report[43] stating that Fladen should be protected from exploitation due to high preservation values. The county administrative board people held the opinion that Fladen was a good location from technical as well as energy production perspectives. However, their opinion was that in spite that the investigations undertaken had shared some light on the habitat on Fladen, the risks on the marine environment could not be evaluated. Their conclusion was that the environmental values at stake were of greater importance and accordingly shared the opinion of the Swedish Environmental Protections Agency. The municipal councils in the municipalities of Kungsbacka and Varberg respectively had decided not to support permissions. Accordingly, they recommended rejection of the application.

After the proceeding had taken place, Göteborg Energi could merely await the courts' decision. In December 2003, The Regional Environmental Court presented their statement on the issue. They concluded that the project not could be approved according to Swedish Environmental Law[44]; in their judgment, they argued that the project was in violation with the

[43] "Förutsättningar för storskalig utbyggnad av vindkraft i havet, Vänern och fjällen", VindGIS, Slutrapport Juni 2003. Preparing the report, consultations had been made with several authorities, among them the Energy Agency and the Swedish Environmental Protections Agency.
[44] Chapter 2, § 9

rules on Natura 2000, public economy and municipal veto. Naturally, Göteborg Energi representatives were disappointed when the court announced their ruling. However, the case was not settled yet since the Swedish government was the final instance, though they knew their chances for approval had heavily decreased. However, in accordance with the law, they submitted the application to the Swedish Government for final consideration. On October 7 2004, the Swedish Government announced that they rejected the application[45]. According to their decision, referring to environmental legislation (Chap. 17 §6) the government can only allow such activities if the municipalities involved approve. The Swedish government can interfere with the municipal veto, if and only if, it concerns activities of special national interest and there is no existing location more suitable for such a facility. Though the government concludes wind power deployment is of national concern, they did not consider a location of a large wind power facility on Fladen as necessary, taking the protection of natural resources under consideration. Thus, the government based their decision on municipal veto and the conclusion presented by The Regional Environmental Court. The governmental rejection temporarily terminated the plans to construct the project. Though the government denied the project, representatives at Göteborg Energi said they have not given up on the project.

"I believe this project is so good that it will return. We will rest our case for a while but nothing is static. There will be new times and there will be new politicians."

Though the government rejected the project, the former project team members at Göteborg Energi seemed to have the notion that they accomplished establishing a picture of Göteborg Energi as an organization safeguarding the environment, which they perceive as positive.

"The project definitely strengthened our credibility, we could almost apply for permission to construct a carbon-heated production plant and no one could oppose it. I mean we tried to contribute to green electricity production out there on Fladen and somehow we have to produce the energy needed."

5.4.5 Schematic figure of the project

The figure is a simplified description of the project and the different phases it went through. It is also a time axis, presenting when different decisions took place, what activities dominated

[45] Government Decision, Miljödepartementet, Regeringsbeslut 23, 2004-10-07, M2003/4078/F/M, Tillåtlighetsprövning enligt 17kap. miljöbalken av en gruppstation för vindkraft på Fladen, Kungsbacka och Varbergs kommuner

the different activities and what their respective objectives were. As we can see, the first four decisions were company decisions and the remaining two were juridical and political.

The figure returns in the end of the next chapter in which the research questions are revisited. There, additional explanatory factors are added; the phases are divided into internal and external, project characteristics described as well as its decision triggers and to what the project was a response.

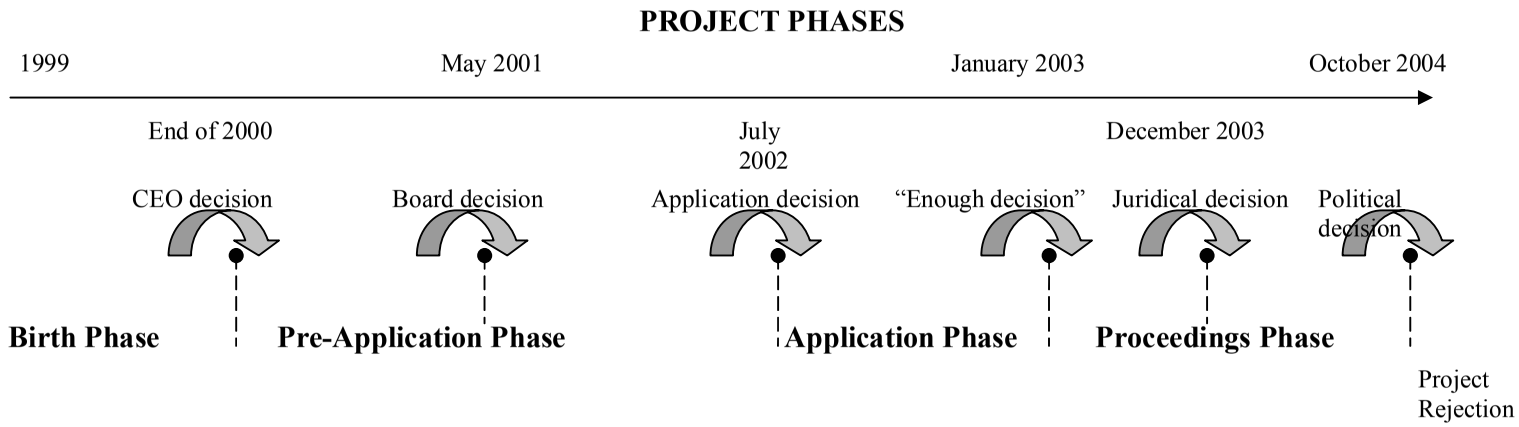


Figure 5-2 Project phases

6 Revisiting the research questions

"Premises supplied by the organization generally control

alternative selection more closely than alternative generation"

Herbert A. Simon

6.1 A short recapitulation

This study set out to answer three questions; 1) what characterized the decision-making processes; 2) what factors affected the choice of location and how were they evaluated; 3) what were the reasons for undertaking the project. The theoretical discussion provided an explanation of the concepts decision-making, evaluations and goals as being much intertwined; none of them comprehensively understood in isolation. The conclusion was that decision processes involve all three concepts and that their respective functioning within decision processes is contextually dependent. The metaphoric description of organizational decision processes as a coin, told us that decision processes have two sides; one representing what really goes on, and the other representing what those involved in the decision-making process want to be perceived as going on. In order to appear as making 'the best' choice, organizations need to comply with the norm of rational decision-making, even if circumstances in real life circumscribe rationality per se; accordingly, the image of a rational process becomes important to emphasize. In addition to the theoretical framework used to deepen the discussion on the research questions, additional theoretical explanations are used in this analytical section; thereby providing a more comprehensive understanding on some of the empirical phenomena described in the previous chapter, e.g. concerning the adversarial conditions between the parties involved in the process.

6.2 Decision process characteristics

The decision-making process studied appears related, if not even similar, to what Sahlin-Andersson (1986) calls extraordinary decisions. This case clearly was about a strategic and non-recurrent decision, entailing a great deal of uncertainty. For one thing, there was no predetermined way to handle all the different issues the organization confronted and no predetermined way for solving different problems; instead problem-solving was dealt with incrementally as different issues popped up with which they had to attend. Assuredly, the

company had experience undertaking investments in energy production, but this was still a new situation. The technology, though tested in their harbor facilities, was untried in a large-scale production setting. Furthermore, within the organization, as well as within the electricity industry, offshore wind power was a rather unproven siting technique, though it was associated with high expectations and almost embellishing scenarios on its future 'revolutionary' impact on the utilization of wind power. In that sense, offshore wind power can be regarded as the contemporary 'recipe' (Rövik 2000) for constructing wind power facilities; offshore was (and still is for that matter) the number one 'buzzword' within the industry as well as among politicians. Though there was a lot of idle talk on wind power among politicians as well as regulators, as the process moved from 'theory to practice', the project team at Göteborg Energi had no predetermined or ordered set of actions and responses at their disposal, which they could utilize in order to regain control over the application process. Instead, the actions taken and responses made appear more ad-hoc and a result of street-smart employees; trying to cope with an unfamiliar situation and maneuver the situation into what they perceived a favorable direction. The utilization of military sonar measures and the attempt to form a joint 'task force' with the regulating authorities involved are examples of such ad-hoc and street-smart maneuvering.

6.2.1 Fortunate coincidence

It seems the decision-makers at Göteborg Energi had access to little information when they made the decision to push the project forward. This decision appears to be based more on a hunch than objectively evaluated information, e.g. the belief that there would be fewer protests here than at other locations, and the notion that if politicians were serious about their wind power objectives they had to be realized at locations the electricity producers found viable, and indeed they believed this particular site was the best. However, the notion that this was the best location does not appear to have been the result of a structured search, for example as a result of a perceived problem (Rövik 2000). On the contrary, their 'stumbling' over this project appears more random and connected to the coinciding of events; the 'bootleggers' dedicated work, the CEO's personal knowledge on and connection to the site, the board decision to expand electricity production and a sudden political boosting for wind power. In that sense, the decision to undertake this project resembles the classic 'garbage can theory' presented by Cohen, March and Olsen (1972), where problems, solutions, participants and choices are met randomly within the organization, more dependent on coincidence then coordinated work. Once these 'actors' coincided, it seems the project fitted the company's objectives like a glove and they intuitively made the decision to go ahead with the project and

apply for permission. Furthermore, since the project represented both a contemporary and accepted solution for producing electricity, which could be matched by coupling it with the perceived organizational need to strengthen electricity production, undertaking the project can be regarded as a way of strengthening their legitimacy.

The process of *concretization* (Sahlin-Andersson 1986), i.e. setting boundaries around the decision process, was at first a process undertaken in secrecy. In fact, it does not appear to have been a managerial process of gradually narrowing down the options to take under consideration, instead, the project suggestion made in advance provided management with the opportunity to approve or disapprove the project without considering alternatives. Thus, the process of *integration* (ibid) commenced once the CEO became committed to the project and formed a formal project, thereafter linking financial resources to the project, which initiated the *association* process (ibid). Establishing commitment to this project appears to be connected to the contemporary idea (Rövik 2000) that offshore wind power was an energy source of the future; thus the dominating idea at this time rendered a possible course of action (Blomquist and Jacobsson 2002) that could be linked to a company strategic mission. The CEO, at first described as reluctant, appears to have changed his attitude when he realized there was quite strong political acceptance for this kind of project, at least on a national level and among politicians in the Board of Directors. However, he informally double-checked for acceptance with the highest political authority within the municipality, who presented an informal, but necessary, go-ahead signal. This demonstrates that even if there are official ways, or manuals, of how companies should make strategic decisions, they are not the only forces at work; for some decisions, there is need for formal as well as informal support.

Once the Board of Directors at Göteborg Energi had made the decision to undertake the project, the remaining part of the decision process was about convincing their surrounding world what excellent features the project represented. Nevertheless, the legal framework presupposes a rational pre-evaluation process; stipulating an objective pre-evaluation of alternative locations which appears tremendously difficult to pursue. Thus, entering a 'post-decision process', the project team at Göteborg Energi complied with the norms on rational decision-making (March 1988; March 1994), evaluating different locations very carefully, for example by applying the model developed by SEA. In that sense they were acting post-rational rather than pre-rational; they rationalized their decision (Flyvbjerg 1998), making the decision stand out as being more an issue of political decision process than a financial economic evaluation process by the book. When the process became a question of involving

stakeholder evaluation the rationalized arguments worked as a means of exercising power over the decision process (Pettigrew 1973).

6.2.2 Adversarial conditions

Another characteristic of this particular decision process is the distrustful relationship that seems to have prevailed between the parties involved. Not many of them seemed to have had confidence in the professionalism of the other. For example, Göteborg Energi complained that representatives from regulative authorities, such as the Swedish Environmental Protection Agency (SEPA), had little insight in the business of producing electricity. During the process, representatives from SEPA claimed that Göteborg Energi presented deficient investigations and inferior data, which were not sufficient according to the legal requirements and consequently useless as basis for the juridical processing of the application. In that sense, the process became a 'truth-struggle', which the parties involved tried to win instead of trying to solve the problem.

The process indeed became a power struggle. What one disagreed upon was how to utilize common resources in accomplishing a commonly desired end, which in this case was an incremental step towards the creation of a sustainable energy system and, in the end, a cleaner and better environment. At least, this was what all parties involved communicated, i.e. they described that their underlying opinion was that wind power, in general, is beneficial for society; however they disagreed on the environmental impact of this particular project. What is interesting is that the outcome of the judgment on this particular project leaves (at least) two different ways of interpreting the result of the outcome, depending on what point of view one takes. If the proxy is global, i.e. a less affected environment due to increased renewable electricity production, the outcome of this particular process is an utter failure since the application was turned down and no facility was constructed. On the other hand, if the proxy is local, i.e. a less affected environment due to the preservation of local natural resources the outcome is a complete success since the application was rejected and no facility was constructed. Under any circumstances, this project is paradoxical as it represents a struggle for improved environment where environmental considerations in the end knocked the project over.

Why could they not resolve their disagreements? This is puzzling because, according to Löfstedt (2005), there is a strong technocratic tradition of regulation in Sweden and historically *"the regulators, the industry and the state all acted in what can be termed the best*

interests of Sweden"(p .98). Historic regulation of infrastructure projects can be described as *"consensual rather than adversarial"* (Löfstedt 2005) (p.85). If there is a history of consensual decision processes in this kind of regulatory setting, why does this case represent the opposite? Possibly, the distrustful attitude from regulating authorities can be explained in the light of the market deregulation; it seems the market reformation has changed the notion on what the former utilities, at present market actors, focus on. The notion that they focus on what is best for society has been replaced by the notion they are more business-driven, focusing primarily on profits and profitable projects, as indicated by prior research on the energy sector (Sandoff 2002; Bergmasth and Strid 2004; Svahn 2004). Therefore, it can be argued that the 'free-market model' liberates and cultivates special interests, which were not as manifested prior the market deregulation. In this case, regulative authorities seemed to have the notion they had to protect 'the best interests of Sweden' from 'profit-mongering' electricity producers. On the other hand, Göteborg Energi's notion was that regulating authorities just were a bunch of, as one of the project team members described them, 'Nature-Talibans'; preserving natural resources at any cost, which not was 'the best interest of Sweden' since Sweden needed cheap and clean electricity as a response to the dismantling of the nuclear power plant in Barsebäck. This raises yet another question concerning what effect the market reformation cause on the transformation process, i.e. whether polarization of special interests is in the best interest of society. Instead of organizations jointly pushing the transformation process forward by agreeing on suitable locations instead, they in this case, devote themselves to positional warfare and it seems that this polarization obstructs localization of such facilities.

6.3 The factors and their evaluation

The dominating factors presented by Göteborg Energi are related to technical and economical efficiencies. For them, the most important factors were area, depth and grid. The importance of area relates to economies of scale, where a certain area is needed to provide space enough between the turbines, they estimated a 800 meter radius as sufficient due to decreasing effects of turbulence. The depth affects project costs, estimated to increase exponentially in relation to depth, thus water depths were fundamental. The grid also affects project costs, if reinforcements are necessary this strongly affects initial capital expenditures. Thus when presenting how the project team at Göteborg Energi undertook their search, they claim these three factors were crucial; in addition these factors were quite rational. Another important factor, more subtle and less possible to rationalize (Flyvbjerg 1998), was the belief that public

opinion in this case would be significantly more silent, thus not causing as much bad publicity as for other projects. Previous discussions on wind power in the board had ended in the conclusion to relinquish other projects, in spite of profitability options, due to their notions that the risks of bad publicity connected to a certain project was too high. However, in this case they thought differently, it was profitable, technically superior and justifiable from a public relations perspective. The fear of bad publicity as a reason to abandon project plans is to some extent contradictory to the historical explanation as to why electricity producers have rejected investments in wind power; their argumentation has rather been that they reject wind power projects due to low profitability. However, as indicated, profitability problems do not seem to have been a problem concerning prior wind power projects, nor the concerned project on Fladen. This is interesting since it was the biggest project planned in Sweden, so far, and entailed a not yet proven facility location. Why is this? Is this a question of technology improvements or is it a question of internal evaluation processes? As described, there have been major improvements in technology, such as increasing turbine effects and output capacity, which has lowered the cost per kWh produced. This is most likely an important explanation. Concerning financial and socio-economic evaluations, the answer is not as straightforward because, as we shall see, there were deficiencies in how their evaluations were undertaken.

6.3.1 The business administrative evaluation of the project

As described, Swedish Law postulates economic evaluation of projects of this kind. Furthermore, as economic resources are scarce, the idea is that business organizations as well as public organizations must economize on them, implicitly entailing that organizations evaluate their actions, proving they handle their resources efficiently, thus acting rationally. The rationality criterion seems to be highly held, implying that organizations are subject to normative pressure showing their owners and stakeholders that they act accordingly (Jansson 1993). Thus, when making project applications such as in this case, the applying organization must prove the project economically viable, both internally and externally, as it seems to be a request for gaining approval and legitimacy, internally as well as externally. As described, financial evaluation theories depict project evaluation processes as rather straightforward procedures. In this case, the decision-makers at Göteborg Energi were convinced that the project was as good as they claimed, however their conviction seems more based upon a gut feeling than actual objective evaluation by the book. In a sense, it was an experience-based notion, as they all had extensive knowledge on wind power technology. Though costs and revenues were uncertain, they took the result of the financial evaluations as pretext for the

project's excellence. Internally, this was as a way of silencing the internal opposition, which seems based more on general aversion towards wind power than clear-cut evidence that the project was a bad business case. However, their viability evaluation does not stand out as entirely certain, as they have expressed several different opinions on the project's profitability options. When scrutinized, it seems their differing opinions depended on what yield requirements and cash flows one used. In fact, it looks as if they reached different conclusions as they pushed the project through the decision process. Nevertheless, if the outcome had been different and they had received permissions, the shared opinion within the company seems to be that a project of this kind shall comply with a seven percent yield requirement in combination with a ten-year payback period. When asked about this payback requirement they cannot really explain why they use it as a decision criterion. Instead of objectively determined, it seems it was as a prescriptive criteria (Segelod 2005); used within the organization throughout the years, related to tradition (Sandahl and Sjögren 2005), where the purposefulness of a payback criterion had never really been questioned. Instead, such prescriptive criteria had the function as rules of thumb (Nelson and Winter 1982).

The interesting part concerning such payback criterion is that it overthrows the possibility to evaluate the financial viability of the project according to a seven percent yield requirement. In fact, applying the requirement of seven percent yield and ten year pay-back corresponds to a yearly return on investment of 14.2 percent (Sandoff, Svahn et al. 2004)(p.54). In short, theoretical assumptions on investment evaluation, such as the NPV method, stipulate that the sum of cost of capital discounted cash flows connected to the project are subtracted from the initial amount invested. If the calculation represents a NPV equal to or greater than zero, it implies the project meet with yield requirements. However, the NPV method accounts for all cash flows deriving from the projects entire life. Thus, applying a specific time horizon, in this case shorter than the projects estimated economic time horizon, implies an implicit yield requirement that is greater than the originally required yield as it must regain capital expenditure within a certain period. Thus, applying the pay-pack requisite eliminates all cash flows emanating from the project after the 'pay-back period'. However, it seems they were unaware that adding a timeframe requirement actually affects the implicit yield requirement on a project. This complies with Sandoff, Svahn et al. (2004) claiming that organizations of this kind are not seldom unaware that adding a time frame causes unfounded high yield requirements on projects. In combination with the results from Svahn (2004), that energy producers base their decisions on defective information, it may have the implication that wind

power projects are not undertaken due to insufficient economic proficiency. Under any circumstances, it demonstrates and adds further validity to the argument that evaluations of this kind are a tricky business, containing many pitfalls, and as described by Jansson (1993) financial evaluation entail something other than presenting calculative accuracy.

In this case, the underlying assumptions can be criticized from a theoretical perspective. Historically, Göteborg Energi is a technically oriented organization and much of their employees have remained the same though their present orientation is more 'economical' than before, considering the recent market reformation. Nevertheless, this might imply that technical evaluation, rather than business administrative, or financial, is dominating when decisions are made and that technically sufficient projects may be dismissed due to erroneous economic information, as described by Svahn (2004). If such insufficient economic proficiencies, as described in this case, are common among electricity producers, it may injuriously affect the deployment of such technologies, especially since the rules of the market are the prevailing; implying that trustworthiness should be a quality market actors ought to consider more properly. Furthermore, it underpins the claim presented by Elkington (1991), that the slow progress of investments in new and cleaner technology is in fact due to investment restraints, or financial evaluation deficiencies as concluded by Svahn (2004), rather than technical efficiency. On the other hand, research by Jansson (1993) and Flyvbjerg (2003) show that extensive financial evaluation not leads to better decisions in terms of profitability. In that sense, perhaps the project team at Göteborg Energi acted precisely in line with the competencies embraced by their employees', which is in fact about understanding the technological opportunities.

6.3.2 The socio-economic evaluation of the project

In this case, the evaluation of the viability of the project applying a societal and national economic perspective seems problematic. It appears that the project team at Göteborg Energi could not perform socio-economic assessments in a purposeful way, simply because there were no useful methods at their disposal for exploring and establishing the environmental costs. It was a question of weighing the benefits of increased electricity production and decreased emissions against potential costs due to environmental damages caused by the project. Thus, it was a question of assessing the values of natural resources for which there existed no predetermined evaluation method, making the required assessment of societal costs and benefits a tricky exercise. How can one objectively determine the market price of disturbed habitat for crabs, fish, birds and bats? As demonstrated in this case, there were

disagreeing opinions as to whether the facility would cause any measurable damage on the habitat. Both the project team at Göteborg Energi and the stakeholders presented perspectives on this issue, all referring to different opinions presented by different experts. However, even if all parties had agreed on what environmental damage the facility would cause, there still would have been a problem assessing the costs, as there were no market prices or shadow prices (Pearce 2002) for disturbed habitats available. Thus, establishing the costs for a disturbed environment based on such perspectives entails negotiations between the parties involved, and, in this case, the parties disagreed on the factual damage; likely a bad point of departure for establishing consensus on costs. Likewise, how can one objectively determine replacement costs for something when there is no objective information regarding what damage a not yet erected facility can cause? To assess replacement costs, of necessity, implies that the object assumed causing damage in fact causes the damage assumed and the only way to find out is to build the facility. The opposing stakeholders stressed the difficulties assessing the environmental damage caused by offshore wind power; resulting in their claim that the project should be rejected based on precautionary principles. Though Göteborg Energi tried to demonstrate that the project was beneficial in monetary terms for society and in terms of decreased emissions, they had problems assessing the benefits of the project to its costs.

6.3.3 Beneficial or not beneficial, that seems to be the question

Whether Fladen was beneficial or not for society and a good or a bad business case, one cannot say for sure. In the end, it all depends on the input used in the evaluation models (Jansson 1993; Flyvbjerg 1998), input that in this case seem based more on notions than factual evidence. What becomes problematic for this kind of infrastructure investment is that the legal system requires such evaluations and that the legal system seems to presuppose that the organization in question evaluates all available options objectively ex ante and that there are meaningful ways of interpreting environmental values. Exploring the Fladen project demonstrates that this objective pre-evaluation is not always the case and elucidates the difficulties in making such evaluations.

Whether this project is representative of similar application processes cannot be claimed for sure, though much research supports that this may be the case, e.g. Jansson (1993), Blomquist and Jacobsson (2002) and Flyvbjerg (2003). If so, it indicates that the legal framework may be ill suited as it is presupposes a completely different process. Thus, it seems that processes of this kind have built-in ambiguity and uncertainty, resembling a sales process more than an objective evaluation process. In that sense such processes seem to be about polishing one self

and smearing the other than actually presenting the best case; resulting in a situation where 'the best bidder' not always gets the deal. In fact, instead of logic and rational features, other factors appear to play the decisive part. For example, making their case, presenting the project's 'unique sales points', Göteborg Energi used a scoring and evaluation model developed by the SEA, which ranked Fladen as number one compared to the other sites evaluated. They also used the earlier mentioned SIKA models to estimate the value of decreased emissions, computing a yearly total socio-economic value of 794 million Swedish kronor. In addition, they claimed that their financial evaluation presented a positive net present value. In spite of their deficiencies, both can be regarded as arguments presented with the intent of empowering Göteborg Energi (Rombach and Zapata Johansson 2005). Can anyone possibly present arguments that are more rational?

6.3.4 The need for stable and long-term conditions

What is interesting is that though calculative accuracy seems to be of minor importance, in general as well as in terms of pushing this project forward, managers at Göteborg Energi, for quite some time had been lobbying for stable long-term conditions, making calculations more trustworthy and projects easier to evaluate as business cases they say. By establishing stable conditions, the necessary investments will come without fail; this seems to be their main argument. In this case, Göteborg Energi repeatedly described their calculative situation as highly uncertain and stressed the need of long-term stable conditions so they could make predictive evaluations of different investment opportunities. Their target of criticism was particularly related to changes in taxation. However, when presenting the Fladen project for the Board of Directors, the project team members at Göteborg Energi explained that they expected steadily increased demand for district heating and electricity. They claimed there would be an increased demand for electricity because of the approaching dismantling of the nuclear plant Barsebäck. In addition, there was a need to reinforce production in the southern parts of Sweden, the origin of the majority of electricity demand. The demand for renewable electricity, as well as retail prices seemed to increase. What really concerned them were future policy changes, i.e. taxation and subsidiaries, and its effect on the project's profitability. A justified question is in what way their situation differs from that of any other business organization when making prognoses of what the future involves. Is the electricity industry exposed to greater uncertainties than other capital-intensive industries? Compared with many other capital-intensive industries their situation stands out as quite pleasant, whereas other industries, e.g. paper industry, automotive industry and chemical industry, seem to face increased commodity prices, increased pressure on prices, legal measurements concerning

environmental aspects and so forth. Though facing risks as well as uncertainties, such industries seem to cope with the situation and make capital investments in new production facilities, new products and new markets.

In this case, what risks motivate a 14.2 percent yield? Assuredly, an integrated European electricity market would imply increased competition, though not necessarily entailing price pressure. As European prices for electricity are significantly higher than on the Nordic market, this rather implies increased prices. Concurrently, as much of Europe's electricity production comes from carbon-heated plants and considering the political objectives on emissions and the 'emission-rights' trading program, the scenario seems to involve an increased demand for 'clean' technologies, such as wind power. As Göteborg Energi claimed, they saw very little business risk in this project; in fact, they called it 'a fool-proof project'. Within Göteborg Energi there seems to be no perceived business risks connected to the project. The reasoning seems to be that once the facility is up and running the risk is mainly that something breaks down. Naturally, they described that they apprehended risks in fluctuating prices or changed taxation in the short run, yet when evaluating such an investment they claimed that it must be considered over a long period and in the 'long run' they appeared convinced that the project was profitable. In that sense, they argued against their own 'prescriptive' decision rule of a ten-year payback request. Interestingly, they perceived the risks associated to such a project to be up front, i.e. the risk lies in whether one is granted the necessary permissions or not. In fact, management described the apprehended project risk as, *"The only fear I had concerning the project was precisely what happened…We did not get the approval."*

6.4 The reasons

It appears as Göteborg Energi wants to be regarded as a participant in environmental caretaking as well as a sustainable energy provider. The organizational reorientation manifests this aspiration and since this reorientation, they have repeatedly conveyed their distinctive environmental image. Therefore, producing wind power electricity seems to be in line with their environmental aspirations. At the time when top management blessed the project there was a small boom for wind power in Sweden. The project, up until then, had lived a quiet and hidden life within the minds of some enthusiastic employees at Göteborg Energi. Then politicians started talking about the future of wind power in a positive light and presented a new proposition on energy policies. It seems that the decision-makers at Göteborg Energi took the political propositions and public statements concerning wind power seriously. The

project started evolving within the organization and they commenced pushing the project forward. By undertaking the project, it seems they saw an opportunity to kill several birds with one stone. They could undertake what they apprehended as a profitable investment, increase their own electricity production, strengthen their legitimacy as a sustainable energy provider and satisfy national political objectives. Still, other organizational goals appear to have been of importance for the outcome of how this project evolved as it did within the organization, i.e. there are several reasons why they applied the project. I have identified explicit as well as implicit reasons as to why they wanted to undertake the project. To simplify my explanation I have therefore divided and analyzed them within separate categories. However, they are not to be regarded as separate but instead intertwined and affecting one another in a complex and unstructured web of intra-organizational demands.

6.4.1 Explicit reasons

Financial rationales appear an ambiguous explicit reason since they were not clear as to whether the investment was profitable or not, at least their different evaluations, as indicated, pointed in different directions. Though they appear to have been convinced the project would have been profitable, it never really became an explicit reason for undertaking the project; under any circumstances, profitability was not communicated externally. Instead for mainly economic reasons, the project fitted the company profile because of its response to two explicit company strategies; constructing electricity production facilities for securing the procurement within the region and acting as an organization involved in environmental caretaking. Of these explicit reasons, which appear rational and logic, the former seems to have been the most important, on the other hand, the latter was the reason communicated. In addition, other factors helped reinforce these reasons, pushing the project forward. The political objectives on wind power expansion appear as a reasonable motive for building the project as it seems to have reinforced the project within the company. For example, the fulfillment of these objectives was the main argument when they presented their case for The Regional Environmental Court, supplemented with political aspirations concerning wind power. In that sense they internalized an external goal, presenting themselves as committed to fulfilling external objectives though the explicit reason probably was more related to expanding their electricity production and enhancing their image as a ‘green’ producer. Fulfilling the political objective, they said, meant constructing facilities at economically viable sites. In practice, Göteborg Energi claimed that viable sites meant sites within technical range combined with good wind conditions and grid connection opportunities. Göteborg Energi also claimed they regarded it as an appointed task for electricity producers to search

for such locations, evaluate their options and apply for approval. According to their opinion, the objective appointed from 'higher levels' was clear, encouraging electricity producers to build wind power sites. Thus, the fulfillment of national as well as international objectives was officially the overall reason for undertaking the project.

Concurrently they seemed to believe this standpoint would strengthen their environmental profile. This complies with contemporary societal norms on environmental caretaking organizations, thus incorporating contemporary norms can be linked to organizational legitimacy issues (Meyer and Rowan 1977; Rövik 2000). In applying a 'social responsibility perspective', the rationale for undertaking the project was the 0.7 billion Swedish kronor saved annually from decreased emissions. Consequently, once more, Göteborg Energi internalized externally defined objectives and incorporated them as their own since they perceived distinct signals from outside the organization; it appears as they believed it would grant the organization and the project the legitimacy it needed. Thus, the organizations external legitimacy was dependent on their incorporation of environmental objectives and the projects internal legitimacy was dependent on the external legitimacy for wind power as a production technology. One of the contributing facts granting this double-acting external legitimacy was the governmental proposition presented in 2002, which advocated additional expansion of wind power. Furthermore, the report published by the Swedish Energy Agency advocated offshore locations and pinpointed Fladen as one of many possible sites. Finally, the hearing held by The Minister of Industry and the idle talk in the corridors afterwards, signaled constructive attitudes from the highest political authorities. At this hearing, the former CEO presented the largest project so far in Sweden, widely acclaimed as a progressive step, which linked the company as well as the former CEO personally to the transformation process, almost obliging top management support for the project. This corresponds to the findings in Bower (1986), that the managerial decision to support a project includes the manager's judgment of organizational opportunity for the manager; depending on the managers feeling on what the surroundings, and the organization, expect of the manager. Furthermore, as their former CEO realized that the highest political authorities endorsed the construction of large-scale wind power facilities, it seems he figured that any bad publicity directed towards Göteborg Energi could be redirected upwards, thus not affecting their legitimacy. The risk of bad publicity had been a conclusive factor for dismissing prior wind power projects. In this case, they could indeed claim Göteborg Energi was only complying with the Governmental aspirations concerning increased electricity production as the dismantling of nuclear power

had commenced. Furthermore, they were complying with Governmental aspirations on wind power. Thus, in a sense, they adopted the responsibility for undertaking two explicit political goals. This was precisely in line with their business missions of increasing electricity production and of being perceived as an environmentally responsible energy provider.

6.4.2 Implicit reasons

Expanding electricity production appears to be in line with a more implicit reason of being regarded as a 'serious' energy provider. It has been indicated that the company wanted to be regarded as a 'serious' energy provider within the electricity industry. At the time when the Fladen project was in the organizational 'pipeline', their former CEO held the presidency in Swedenergy[46], which is the trade association for energy producers. It has been indicated that the three major electricity producers at that time[47] wanted a president who was 'neutral', i.e. a president not representing any special interests connected to the three major electricity producers. It seems as if this was a question of trade association legitimacy since nobody could accuse a 'neutral' president of running errands, which were in the interest of any individual electricity producer. In addition, although Göteborg Energi was one of the major energy producers and held the presidency, it has been indicated that their strength within the trade association in a subtle sense suffered from the fact that they were a small electricity producer. It has been described that, within the trade association, producing electricity was regarded as more technically superior than producing district heating, i.e. electricity producing organizations were engaged in more complex production technologies, in a sense making them more 'serious' in the eyes of the other members of the trade association. Thus strengthening their position within the trade association, i.e. not being regarded as 'Lilliputian', also implicated the need to expand the production of electricity and to focus not only on district heating. Thereby becoming what has been described as a more complete energy provider; corresponding with the argument presented by Scott (2003) that other forces than competition and efficiency are the ones at work.

From this perspective, it is interesting that the project grew considerably during the pre-application phase – from initially 40 turbines to the applied 60 turbines. Still, the increased amount of turbines can also be explained from the perspective of explicit economic reasons, i.e. when evaluating the project they seem to have concluded that if the project was to be financially viable it had to be of a certain size. Fixed costs could then be smoothed out which

[46] The present CEO at Göteborg Energi still holds the presidency
[47] Vattenfall, Sydkraft and Fortum

indicates that there is economy of scale when constructing offshore wind power plants. Accordingly, the project grew considerably compared with the original idea, because project overheads such as grid connection and maintenance costs could be distributed on additional units. However, a bigger construction also meant more electricity production. Since the need for local electricity production enhancement was an explicit reason as well as the rationale for the strategic decision to expand 'the electricity division', it helped reinforce their opinion that Fladen was an excellent site for the facility since it provided enough space for all the units they needed to make the project viable. In addition, more electricity production would make them a bigger electricity provider and as such, increase their legitimacy within the industry. These different reasons appear to have been hand in hand.

The relation between Fladen and the Rya project

As described, the project, initially considered by management as a wild and undesired idea, was internalized and part of the company mission and there were rational as well as irrational circumstances that pushed the project forward. Notably, they seemed to believe wind power as production technology would reinforce the image of a caretaking energy producer, acting with the intention to create resource-efficient and sustainable energy systems, which was in line with their business mission. In their pursuit to reinforce the image of a 'serious' energy provider, Göteborg Energi claimed they wanted to contribute in attaining the national political wind power objectives. Thus, as indicated, applying for the Fladen project strengthened their environmental profile. Concurrently, they pursued the parallel process of constructing the Rya power plant, which would increase district heating and electricity production simultaneously.

Concerning this parallel project, Göteborg Energi perceived potential problems since the Rya project was moving slowly and the outcome of the project seemed somewhat unsure, even as they had started constructing it. The Rya project has a long history within the company; it appears as they have reflected on this project for as long as 20 years. Göteborg Energi received the necessary permits for Rya in 1991 and since then had been lobbying for changed taxation rules for power-heating facilities, a change they claimed necessary for setting the economic conditions right for such a facility. As described their former CEO had been bustling about like mad at different governmental departments in the pursuit of changed taxation-rules. In October 2001, they applied for prolongation of the building permits at The District Environmental Court as the original permissions would expire. Then, the Swedish Society for Nature Conservation (SSNC) appealed against their application for prolongation based on environmental aspects as the construction would be fuelled by natural gas. In

addition, after Göteborg Energi received initial permissions in 1991 a new environmental legislation had been passed (Miljöbalken 1998:808 was applicable since January 1st 1999) and the SSNC claimed that the facility did not comply with this new legislation. The District Environmental Court turned down the SSNC appeal claiming that they had no formal right to appeal. Then SSNC appealed their denied right to appeal to the Swedish Supreme Court, claiming that they did in fact have the right to appeal. Awaiting the decision from the Supreme Court, Göteborg Energi in May 2004 launched the Rya project as politicians had pledged changed rules for taxation. Finally, after intense lobbying they figured the project was economically viable. However, they were still under attack from SSNC as they claimed that the Rya power plant posed a threat to local environment. Thus, environmentalists appealing their denied right to appeal the project in the Swedish Supreme Court posed a new threat to the project, which replaced the former threat constituted by unfavorable taxation. In addition, the Rya project had been questioned within the Board of Directors where representatives from 'the Green Party' (Miljöpartiet) were not precisely enthusiastic about the project and within the company 'the Green Party' was perceived as not taking an official position on the project. It appears Göteborg Energi wanted to avoid bad publicity at all costs, for example, they had dismissed several other wind power projects due to risk of bad publicity. Accordingly, it seems Göteborg Energi needed a strengthened environmental profile, as some perceived the Rya project as environmentally controversial; providing the opportunity to buffer their technical core (Scott 2003).

Compared to the Fladen project, there is no doubt that Göteborg Energi prioritized accomplishing the Rya project. For example, it was an implicit understanding within the company that the initially appointed project leader on the Fladen project, by management described as one of their best, would drop that assignment once the Rya project would commence. Furthermore, when the Rya project was finally launched top management interest in the Fladen project decreased. Göteborg Energi explains the reason for their decreased interest in terms of economic rationales, i.e. they figured two separate billion Swedish kronor projects were a bit 'on the edge'; which complies with the arguments that managers focus on the amount of money at stake rather than real project risks (Hamberg 2005).

Accordingly, concerning the Fladen project, top management adopted a wait-and-see policy. Still, this appears puzzling as top management representatives claim they regarded the Fladen project a foolproof investment and the only fear they had concerning the project was precisely what happened, i.e. a rejected application. Consequently, if they regarded it a foolproof

investment, why did they not make more effort pushing the project through the application process? Why did they apply a wait-and-see policy?

As indicated, one possible explanation is the economic perspective, i.e. the total amount of invested capital would be too high undertaking both projects. However, this contradicts theoretic assumptions on project evaluation (Copeland and Weston 1988; Pinches 1996; Brealey and Myers 2000). If an organization has the opportunity undertaking two separate profitable projects, i.e. both projects represent a positive NPV, the fact that the total amount of capital the projects account for is substantial should not discriminate one project in the light of the other. A positive NPV is the result of the sum of discounted cash flows subtracted from the initial amount of capital invested where the discount rate is a function of the risk free market rate, project business risk and market rates[48]. Therefore, as they regarded the business risk associated to Fladen as almost non-existent, it is puzzling why they did not make more an effort accomplishing necessary permissions for Fladen. Furthermore, it makes their explanation of decreased interest in terms of capital restraints questionable as they could have turned towards financial institutions, seeking the loans they needed. If projects represent positive NPV, theoretically, it should be of no concern for the company whether they finance their projects through loans or equity. No matter its financing, the outcome of the project would entail an increased value of the company as the discount rate incorporates the cost of financing the project. However, increased debt financing entails higher risk for the owners. This is since lenders receive payments before stockholders; accordingly, the more debt financing a company relies on the riskier for the stockholder and as a consequence owners should demand higher returns (Brealey and Myers 2000). In this case, as Göteborg Energi is a municipally owned company and not publicly traded, it is questionable if this line of reasoning is applicable since their owners in the end are the citizens of the municipality Gothenburg, not stockholders who sell and trade financial assets on the market. On the other hand, it is also questionable whether it is in the interest of the owners, the citizens of Gothenburg, that the value of the company increases. Instead, as the company is a municipally owned utility provider it is arguable that such an organization instead should engage in providing utility, i.e. provide the municipality with cheap and safe procurement of electricity, not be apt to increase the value of the firm. Still, Göteborg Energi argued that both projects would entail precisely this, a cheap and safe procurement of electricity to the residents in

[48] Expected project return (yield requirement) = $r = r_f + (\text{project beta})(r_m - r_f)$, Brealey and Myers, 2000, p. 223

Gothenburg. Therefore, once again, why did Göteborg Energi not make more of an effort in pushing the Fladen project through the application process?

A provocative explanation

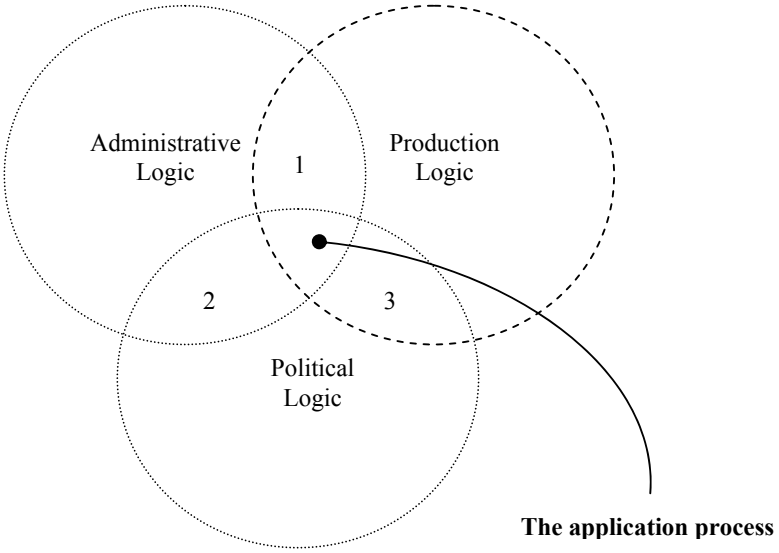
In this case, the managers seem to have perceived that the amount of money posed a restriction in terms of capital available. This provides another explanation to the reduced managerial interest in Fladen once the managers perceived they could accomplish the Rya project. However, when managers at Göteborg Energi decided to apply for the Fladen project it is most likely they knew that Rya was making progress. In a wider perspective, it appears that the issue of capital restraints, which they claim explains their decreased interest, is questionable. It is arguable that they could have foreseen this situation and, consequently, they could have assured the 'capital restraint' issue would not pose a problem concerning the undertaking of the Fladen project, if they had received the permissions. Consequently, there might be additional explanations as to why their interest in Fladen dropped once the Rya project started. It also provides a supplementary implicit reason to their pursuit of undertaking the then largest wind power facility in Sweden: that their application on Fladen was about something else.

In the light of their perceived need to strengthen their environmental profile, which, as argued above, can be apprehended as a response to the environmental criticism on the Rya project, it is possible to explore an additional implicit reason as to why they pursued the Fladen project. In applying the perspective that organizations intentionally talk, decide and act inconsistently (Brunsson 1989) it is possible to understand the talk and decisions on the Fladen project as an attempt to facilitate action in another direction, which was undertaking the Rya project. In that sense, Fladen can bee seen as a response to normative pressure concerning environmental caretaking organizations; wind power was in fact part of their communication of an environmentally conscious organization. Thus, Brunsson's perspective provides an opportunity to understand the Fladen project in a way that implies that Göteborg Energi applied permissions to undertake a project they in reality did not desire but that the application of the Fladen project created scope for a project they did desire, which was the Rya project. They could use the rejected application at Fladen to their own advantage, for example by claiming: 'Here we present the most favorable wind power project ever and still it is rejected, what more can we do? In one way or another, we have to deliver the electricity needed.' Indeed, the project team and the managers at Göteborg Energi could not be held responsible if their application for the Fladen project was rejected, that decision was out of

their control. Therefore, it was quite safe to apply the Fladen project even if they suspected they would most likely fail, and, after all, they appear quite convinced that they would succeed with Rya. As Latour (1996) has put it "*how can people be condemned for failing when those very same people are succeeding elsewhere"* (p. viii).

6.5 The illogic of 'intersecting' logics

This case provides a picture of an application process characterized by very little understanding between the parties involved in the application process – concerning the suggested location as well as what issues were relevant for investigation. In the eyes of Göteborg Energi, the opposing parties showed little understanding for the problems they confronted, and their arguments concerning why they considered the selected location was the best. Whereas, in the eyes of the opposing organizations, Göteborg Energi also showed little understanding for the issues of their concern and their arguments regarding the location of the site. In analyzing the process, it makes you wonder why there were such adversarial positions. During the process of 'dissecting' this case, a picture of the application process came about. This particular process seems to function as an arena where diverse organizations operating in accordance to three different logics – one 'production logic', one 'administrative logic' and one 'political logic' – have interacted and within the intersection of theses logics, the application process appears to take place.



1 is the interaction/relation between the administrative logic and the production logic
2 is the interaction/relation between the administrative logic and the political logic
3 is the interaction/relation between the production logic and the political logic

Figure 6-1 The application process as an intersection of logics

This study has focused on one of these logics, the production logic, thus it is hard to say something intelligent about how the other identified logics operate. However, through the 'lens' of the production logic the other two logics have materialized and what appears quite obvious is that they function rather differently. The picture this case provides is that the people acting according to the production logic had little understanding about the other logics. Accordingly, it would be pretty interesting to apprehend a more comprehensive knowledge about the other identified logics, thereby providing a more multifaceted picture of this particular application process.

Naturally, the description of the application process as an intersection of different logics is only one way of explaining the underlying reasons for the identified adversaries amongst the involved actors, there may be several other explanations. Nevertheless, part of the purpose of this study was to provide knowledge on the logic or illogic of this kind of process. As such, the identified incapability of providing a productive inter-organizational decision-making process, i.e. the illogic of these three interacting logics, can shed some light on why so little of the expected rationality exists in this kind of processes.

Before entering the conclusive section of this thesis, we briefly turn to figure 6-2. The figure describes this process in terms of two phases of the project – one internal and one external. Furthermore, the characteristics of the different phases are described and the decision triggers are outlined in combination with what the project was a response to.

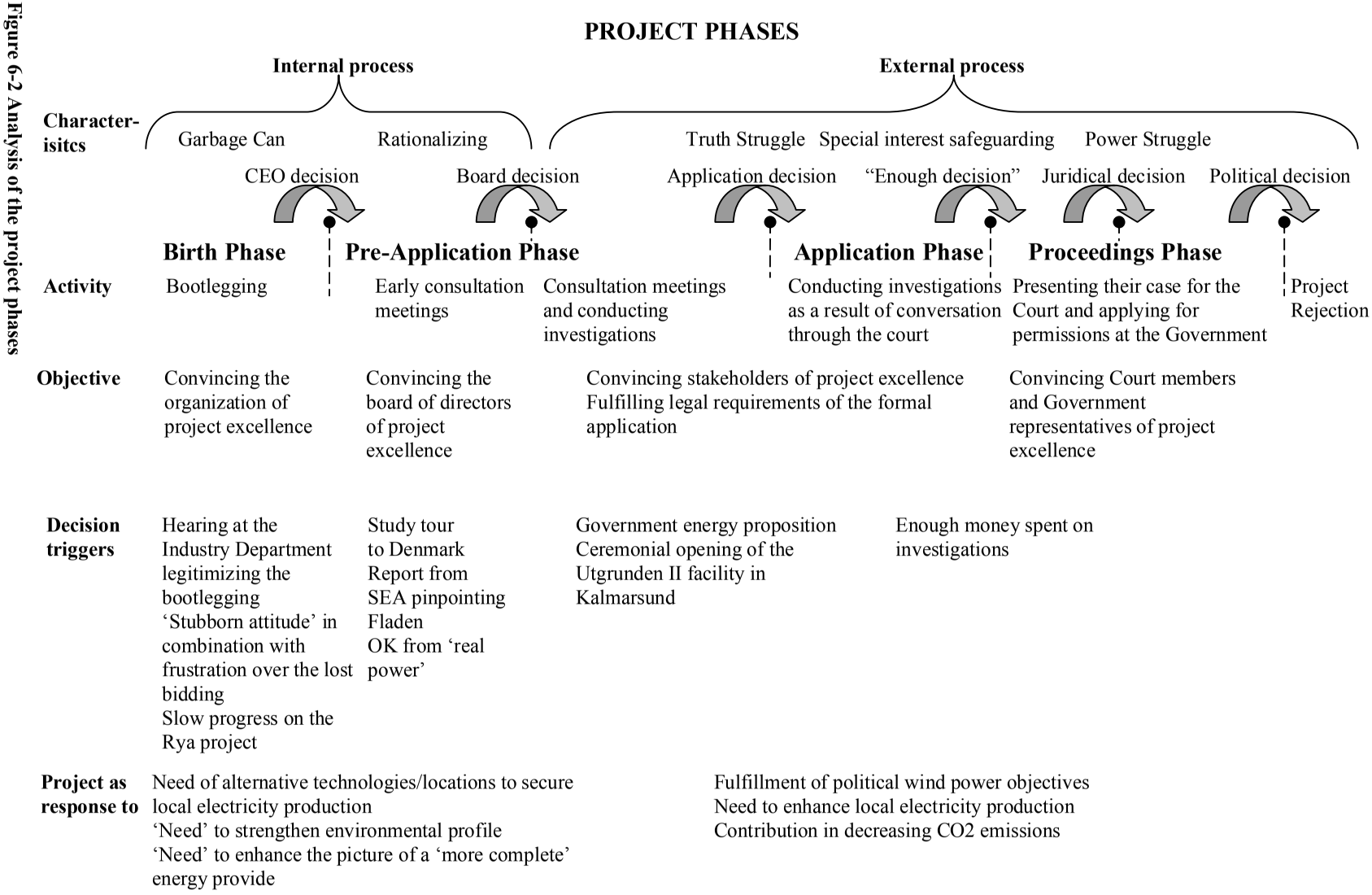


Figure 6-2 Analysis of the project phases

7 Conclusions

"To act wisely and effectively in a context of postmodern moral and factual ambiguity requires a considerable degree of moral courage. Somehow planners and advocates must learn how to persuade yet be open to persuasion, and they must strive to create forums in which that kind of mutual persuasion can occur."

James A. Throgmorton

Concerning how business organizations handle decision processes, or investment projects, this study is an additional contribution to prior conclusions provided by empirical research, e.g. Sahlin-Andersson (1986), Brunsson (1998) and Blomquist and Jacobsson (2002), that business organizations are not engaged in decision processes resembling the normatively anticipated assumptions on decision-making. On the contrary decision processes are embedded in a wider context of various actors and institutional rules affecting the decision process as argued by Blomquist and Jacobsson (2002). This study demonstrates that decisions are made in a future-oriented historic present, i.e. the process is embedded in a setting represented by historic events experienced amongst individuals within the participating organizations, the present behavior of the individuals acting within the frameworks of the organizations involved in the process and, indeed, their anticipations and expectations about the future. In this study, the involved stakeholders, the historic events between them and their special interests concerning the nature of the future exemplify the embedded nature of the decision-process. It is further exemplified by the current institutional framework, which is constituted by the political process of transforming the electricity production system, the regulative and legislative frameworks that guide the construction of offshore wind power sites, the framework of the reformed electricity market and, indeed, the contemporary norms of decision rationality.

Acting rationally within this type of application process is not an easy task. As we have seen, the palette of different issues for the applicant to handle is extensive and there are a number of different stakeholders involved – representing a diversity of different interests and operating according to different logics. However, if, as in this case, the decision is about making 'the best choice', such as the quest for 'finding the right place' appears to be, organizations appear almost obliged to comply with the contemporary norms of rational decision-making processes, even if it turns out to be impossible in real life decision situations. They have to prove the

decision they made concerning the suggested location is the very best possible and the means of doing so is to compare the suggested location to other potential locations. Nevertheless, the expected rationality is put out of the running because the application process constitutes two different and contradictory rationalities; decision rationality, i.e. complying with the norms of decision-making, and action rationality, i.e. to actually getting something done (Brunsson 1982). Accordingly, the findings in this study support conclusions from prior studies on organizational decision making and organizational action, e.g. Brunsson and Jönsson (1979), Brunsson (1982) and Rombach (1986), implying that organizations exposed to strong demands due to decision rationality can have difficulties undertaking action. The illogic of the application process is that the fact that the process of comparing alternative locations circumscribes the actual action. One thing this study clearly demonstrates is that the introduction of additional alternatives and matters to evaluate becomes a method of curbing action. This happens once the applicants' decision becomes public and the application process then appears to turn into a truth and power struggle between special interests. In this case, the intra organizational managerial decision to support the project happened to be based on little formal information. Instead of substantial information about different alternatives, the relevance of the alternative presented appears to be connected to the personal trust placed in the person presenting the project. The CEO 'got hooked' on the idea and needed additional information to support, or rather legitimize, his decision. The provided information strengthened the position that this was the best alternative possible, which created an early locking for the suggested alternative; a sequence of events that is clearly in line with the action rationality. It then became a question of gaining support for the suggested project.

In gaining support for the project, the applicant becomes engaged in what Weick (1995) refers to as sense-making, Gioia and Chittipeddi (1991) refer to as sense-giving, Throgmorton (1996) refers to as persuasive story-telling or what Corvellec and Risberg (2005) refer to as 'mise-en-sens', i.e. the process of arranging the constituents in a certain direction in order to create meaning for oneself and others. However, as the number of stakeholders and opposing arguments increase, the applicant is gradually deprived of action rationality. This is a result of their initial 'persuasive story' being questioned. They are instead 'pushed back' into a process of complying with decision rationality, which is required for legitimizing the organization as well as the project, and the story they wish to tell about a meaningful, sensible and future-oriented project turns into a 'speech for the defense'. From the applicants' perspective, it appears that pushing the project through the application process is comparable to running a

steeplechase course without knowing in advance what obstacles one will confront, or what methods or tools will be required for finishing the course. Such a situation makes it difficult to maintain the initiative. Instead, the applicants end up being on the defensive, responding on feedback rather than predicting how they should react. Even if they try to keep the initiative, there might always 'pop-up' some new endangered species to which they have to take consideration, in turn undermining the persuasiveness of the story. The opposing stakeholders could also simply reject the results of their inquiries, thereby undermining their competencies. In that sense, the project remains 'alive' as long as the applying organization manages to remain persuasive and in order to accomplish this they have to be on top of the 'mise-en-sens' process. In practice, this implies that they have to create credible arguments for the suggested location, which requires substantial information about various issues, as exemplified in this case. However, to obtain this information they need permissions to undertake formal inquiries on the location and that automatically entails the project becomes public knowledge. Accordingly, these entrusted market actors in fact posses little real authority over the application process and the rationality to a great extent lies in the hands of its opponents. In this case, the economic rationales for erecting wind turbines at a certain location were of secondary importance. In applying the perspective of the market actor, i.e. Göteborg Energi, it might even be considered an established fact that the site was the right one; even the Environmental Court declared it was so in their ruling. In fact, in this case the 'production logic', which to a great extent is supposed to guide the search for adequate physical locations, does not appear to play as decisive a part as anticipated.

In a society treating economic rationality almost as a virtue, or ideology (Ingelstam 1991), it is particularly interesting that those who present the most 'rational' arguments, in this case Göteborg Energi, are not the ones who come off victorious. In fact, this case contradicts one of the claims made in the book "The Successful Language of Economics" (Den framgångsrika Ekonomiskan) (Rombach 2005), which states that when an important issue is to be settled, the economic issues are decisive for the outcome of the decision. For many important decisions on infrastructure investments in contemporary society, this claim holds for true – for example, the decision to build the tunnel through Hallandsås was characterized by strong economic arguments (Blomquist and Jacobsson 2002). However, regarding the deployment of wind power the economic rationales appear to be of secondary importance. On the contrary, the fear of negative environmental effects, in this case, played the decisive part. In that sense, the outcome of the application process is quite paradoxical since environmental considerations

knocked down a technology that many regulators and politicians are generally inclined to support as environmentally favorable, provided it is located at the right place, i.e. the right place according to their logic. Accordingly, this can be considered a form of political hypocrisy, i.e. when politicians urge the market actors to seek out adequate sites and thereafter reject them the permissions to undertake the project that the 'entrusted' market actor finds to be the most adequate.

Concerning hindering forces affecting the deployment of wind power, this study provides an additional explanation; the organizations interacting within the application process operates according to different logics, entailing that they have trouble communicating with each other because the different logics foster dissimilar special interests. When these special interests come in conflict, it appears they lead to mistrust between the parties involved, which in term creates deadlocks. A tentative theoretical explanation is that the neoliberal idea of providing public utilities by utilizing 'as much market forces as possible' works against its intention to liberate new initiatives, i.e. within the framework of the market economy adversarial special interests appear cultivated which circumscribes collective action. What supports this idea are the findings in Löfstedt (2005); that the regulators, the industry and the state, prior to the market reformation, acted in a way characterized as 'the best interest of Sweden', basing decisions on consensus instead of juridical settled decisions. Quite so, there has been a palpable connection between the utility providers, the regulating authorities and the state, which no longer prevails, though the state has not loosened their grip concerning energy policies. Within the context of the 'neoliberal logic', which embraces the logic of the market, it appears regulating authorities are more on their guard, safeguarding their special interest as a method of maintaining their power. In that sense, the political focus on economic inducement systems may have been too narrow-minded. As a complement, a productive ambition could be to strive for the establishment of constructive forums, where market actors, regulators, and politicians can interact. Indeed, it seems as if Throgmorton (1996) is correct when he claims "*somehow planners and advocates must learn how to persuade yet be open to persuasion, and they must strive to create forums in which that kind of mutual persuasion can occur* (p. 255)*."*

Suggestions for additional research

One interesting research issue would be to compare the process of deploying wind power with other contemporary infrastructure processes. For example, one process that appears to represent similar conditions in terms of conflicting interests is the process of introducing 3G

mobile communication networks. Constructing such networks involve deployment of mobile radio pylons which, like wind power, entails encroachment in the natural landscape. This kind of process also involves regulating, political and business organizations, and most likely involves the intersection of different logics. In that sense, the process of granting building permissions is similar to the one concerning building permissions for wind power. Furthermore, just as in the case of wind power deployment, the deployment of mobile radio pylons has been a source of local controversies where the fear of negative impact on humans as well as on the environment appear to be the dominant arguments of those opposing the erection of pylons in their neighborhoods. Nevertheless, the construction of the 3G network is almost completed, thus this process appears to have been an issue of much more significant priority. The interesting part is that the decision to initiate the construction of the 3G network was politically initiated, just as the process to increase the utilization of wind power. The market actors were invited to participate in some sort of 'beauty contest' where the three best 'bidders', providing as much coverage as possible and representing the most credible financial records were the ones who finally received the operating licenses.

Considering the above presented hindering force – whether the different actors operate according to different logics and thus have trouble communicating with one another, or not – this conclusion could be further examined by studying other similar cases; successful cases in terms of granted applications as well as unsuccessful cases in terms of rejected applications. Making such additional case studies could provide additional empirical evidence of conflicting interests, or provide pictures of more nuanced processes. Under any circumstance, they could further explain whether some kind of pattern within unsuccessful as well as successful application processes exists.

One particularly interesting question remains unanswered – why the actors had such trouble communicating with each other. As mentioned earlier, this study identified three interconnecting logics within which the application process appears to take place. However, as indicated, the study has only directed interest towards one of the identified logics – the production logic. Confirming or overthrowing the tentative theoretical explanation – that the neoliberal idea of providing public utilities by utilizing as much market forces as possible works against its intention of liberating new initiatives – would indeed require further research. Such a study ought to be directed towards expanding the above presented case study; with the aim of understanding the logic, alternatively, illogic that prevails among the stakeholders involved. For example, by interviewing and studying decision-processes

concerning the Fladen case that took place within regulating authorities, the involved municipalities, the Swedish government and the District Environmental Court and other relevant stakeholders, a more elaborate picture of the project could be provided. Other studies, e.g. Åkerstrøm Andersen (2000), have applied a system-theoretical perspective in analyzing how different organizations interact. Applying such a perspective appears interesting as well as productive. For example, one could replace the identified logics with systems. In fact, Åkerstrøm Andersen (ibid) claims that, *"...communication is only possible within a system. Different systems may communicate about each other, but they cannot communicate with each other, simply because they produce meaning differently"* (p. 46, underlining added). If the production of meaning and knowledge in decision-making processes within a system is affected by its prevailing logic – a notion that certain research supports e.g. Säljö (2000) – the application of a 'systematic' approach could provide interesting explanations as to why the stakeholders involved had such trouble communicating with each other and how this miscommunication affects the productiveness of this kind of application process, and indeed, the further deployment of wind power.

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