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**Annual report 2004**  
**Sociological**  
**Investigation of the**  
**Reception of**  
**Nysted Offshore**  
**Wind Farm**

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Sociological  
Investigation of the  
Reception of Nysted**

Commissioned by  
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# 1 Introduction

This annual report presents the work related to the sociological part of a socio-economic project that examines the effects on the local communities of the two demonstration off-shore wind farms: Horns Rev Offshore Wind Farm, west of Blaavands Huk in Jutland, and Nysted Offshore Wind Farm, south of Lolland.

The socio-economic project is part of the monitoring programme in connection with the construction of the offshore wind farms. Unlike projects, which examine the impact of the wind farms on nature, the socio-economic project did not start until 2003. The other part of the socio-economic project is an environmental-economic study that among other things examines the preferences of the population in relation to location of the wind farm and the willingness to pay for increasing the distance between the wind farms and the coast.

This sociological study is qualitative. The study is divided into three phases, as the aim is to investigate the public community's attitude towards the erection of an offshore wind farm before and after the construction of the wind farm. This aim is based on the assumption that attitudes may change once the wind farm is erected and the population has experienced the visibility of the wind farm, etc. The division into phases is as follows:

- 1) Phase 1 treats the conditions as they were before the erection of Nysted Offshore Wind Farm.
- 2) Phase 2 is a study of the development in attitudes towards Horns Rev Offshore Wind Farm a year after erection.
- 3) Phase 3 comprises a follow-up study of the local area at Nysted Offshore Wind Farm.

The Horns Rev study was conclusive and was carried out September-November 2003. The study at Nysted on the other hand implies two parts. The first was carried out April-August 2003 and identified attitudes before the wind farm was completed. A follow-up study in August-December 2004 served the purpose of revealing the extent of attitude changes regarding the wind farm and the development of these changes of attitudes.

The results of the studies in the two local communities are compared to establish similarities and differences and make recommendations for future construction of offshore wind farms.

This annual report treats phase 3 but will include some essential conclusions from the annual report 2003 as an introduction to the new findings and the overall conclusions. The results of the follow-up study in Nysted, the comparison of the two cases and thus the conclusion of the overall results of the investigation are presented in this annual report.

## Background of the investigation

The overall investigation of the effects of offshore wind farms on the local area is based on the construction of two demonstration offshore wind farms at Rødsand, south of Lolland and Horns Rev, west of Blaavands Huk. The background of the demonstration wind farms is a political wish to reduce the CO<sub>2</sub> emissions and thereby the environmental problems related to Danish energy consumption. In this connection, wind power is a significant contributor. The assessment is that it is more efficient to establish few, large offshore wind farms instead of small, scattered locations to reduce the impact on the coastal area (The Danish Energy Authority 1994).

The question is: how have the local communities received the two offshore wind farms?

The part studies are to reveal the local communities' attitudes towards the wind farms before and after erection. It is thus the purpose to study if attitudes towards the wind farms have changed over time, and if so, how they have changed. We work with three different attitudes towards the offshore wind farms: Supporter, opponent or a more pragmatic attitude in the form of acceptance. Initial attitude and possible changes in attitude may be illustrated as follows:

Figure 1.1 Attitudes towards offshore wind farm before and after erection

	<b>Supporter</b> of the offshore wind farm	<b>Opponent</b> of the offshore wind farm	<b>Acceptance</b> of the offshore wind farm
<b>Before</b> erection of the offshore wind farm			
<b>After</b> erection of the offshore wind farm			

Supporters of the offshore wind farm are expected to base their opinion on environmental concerns or on local or national occupational effects, as these justifications have been found in a Swedish investigation (Mels, 2003). The opponents are expected to base their opinion on a fear of negative environmental and aesthetic consequences, decreasing (summer) house prices and income from the tourist industry. The acceptance is expected to be based on balancing of

environmental considerations and the concern for nature and aesthetics. The purpose of the study is to find out if the assumptions are true and to identify other possible reasons behind the attitudes and just as importantly any attitude changes over time.

## **Method**

The study is a qualitative study, which means that text analyses and qualitative interviews have been made. This method is selected because it provides the possibility of scrutinising the different issues, pinpointing underlying explanations to phenomena as well as inserting the phenomenon in a larger context and overall picture. Thus there may be a number of reasons underlying a person's attitude towards wind turbines in general or the wind farm in particular, which it might be difficult to unveil in a questionnaire. In a qualitative interview it is possible to ask explanatory questions, and the thematic structure of the interview enables the interviewee to bring items into the discussions, which were not expected beforehand. The qualitative interview has also demonstrated to be useful for establishment and explanation of dilemmas between consideration for the environment and respect for nature.

Another reason for selecting the qualitative method is that the wish to establish changes over time makes it relevant to include qualitative analyses of written material. This means that the examination of the subject is approached in more ways:

- Firstly, written material in the form of articles, leading articles and reader's letters from regional newspapers provide the basis of unveiling the nature of the debate in the local community, the extent of the debate and its participants. The newspaper material reflects attitudes in the local community throughout the course of the project; plans, decision and erection of the offshore wind farms. At the same time, the newspaper material shows which attitude towards the wind farm the paper has conveyed to the readers and how the readers have received this attitude.
- Secondly, interviews have been made with local social agents, politicians, government officials and citizens who have expressed their opinion on the matter in public or participated in the local debate. In the follow-up study 10 persons from the first study have been interviewed again. Furthermore 8 respondents from a questionnaire conducted as part of the environmental-economic investigation have been selected for interview as well as two persons representing interests in tourism.

The interviews provide insight into the attitudes of the local social agents and the reasons underlying their attitudes. In addition, the interviewees act as informants on attitudes in the local community.

The two different approaches supplement each other as the analysis of the newspaper material may help elucidate aspects of the local opinions, which the interviewees do not remember, because these aspects date back to a time several years ago. At the same time, the comments made by the interviewees on the

newspapers' way of presenting the matter and the position of the newspaper in the community may help put the newspaper material into context.

However, the qualitative method is limited as it cannot possibly be representative and thus it cannot say anything about the extension of the phenomena identified. The qualitative interviews are long and heavy on information making it impossible to make enough interviews to obtain representatively. On the other hand, the interviews provide the possibility of scrutinising the problem, which is very efficient when investigating a field that has not been investigated before.

Furthermore, the combination of two different methodological approaches within the socio-economic project has provided a unique possibility for comparing the qualitative results with quantitative data. The environmental-economic study implies a questionnaire to three samples: two samples of 350 respondents at Nysted and 350 at Horns Rev and a national sample with 700 respondents. The questionnaire has provided some data that can be used in comparison with the qualitative data.

## **Design of the investigation**

The two part investigations are structured in the same way and are outlined here, as the structure of the investigations forms the basis of the subsequent review of the results. As mentioned these results were presented in details in the annual report 2003.

- 1) The work of identifying attitudes towards the wind farms was initiated with a review of the course of events, which proceeded the erection of the wind farm. The course of events is very similar and only diverge in relation to application and approval deadlines and thus also in relation to time of erection of the two wind farms. The purpose is to be able to compare factual information on progress, reasoning for choice of location, consulting rounds, etc with the subjective impression of the course of events which become available during interviews with local and regional social agents and which are subsequently analysed.
- 2) Then the press coverage of and debate on the offshore wind farm in the regional newspapers have been identified. It is assumed that the newspapers' coverage helps form the public opinion of the wind farm. The debate, which has been printed in the newspaper in the form of reader's letters and leading articles, provides an impression of the different attitudes. In addition, the written material is central to the identification of attitudes in the early stages of the course of events, as these attitudes date back to the presentation of the first concrete plans for the offshore wind farms in 1997. It may be difficult for the interviewees to remember details dating back to 1997.

In this report the updated analyses is reported and some overall conclusions based on comparison of the two cases are pointed out.

- 3) On the basis of the review of the course of events and the identification of themes and participants in the local and regional debate on the two offshore wind farms, qualitative interviews have been made with social agents from the two communities. The respondents have expressed their subjective attitude towards the offshore wind farm and they have acted as informants on attitudes in the local community.

The extension of the number of interviewee from 12 to 20 and hereby inclusion of some respondents from the environmental-economic questionnaire has provided important in-put to the analyses. Not only in relation to the analyses of the interviews but also on the two first reviews. i.e. the course of events and how it has been perceived by ordinary citizens and how they have received the coverage in the regional newspaper.

- 4) On the basis of the previous three themes, conclusions are made on attitudes and underlying reasons in the two local communities.

Below, the results of the individual themes are presented.

## 2 Course of events

The purpose of this review has been to create a general overview of the long course of events that lead to the designation and erection of two offshore wind farms. Furthermore, the review of the course of events also functioned as starting point for the analysis of newspaper materials and the interviews with local social agents.

The review was presented in details in the annual report for 2003 hence only the conclusions and the input from interviews with new interviewees are mentioned here:

### Conclusion

The review has shown that the work of designating possible locations of offshore wind farms and the decision to erect the wind farms has been lengthy and thorough. However, control of the process has been centralised, i.e. balancing of different considerations, including consideration for the environment and landscape, but also consideration for technological possibilities and consequently economy and time. The mapping pointed to locations where a committee found that the damage to the landscape would be minor. As discussed later in this report, interviews with local social agents in the two local communities have, however, shown that the local communities have not found this approach fully acceptable. As such a conflict of interests has emerged between local assessments and interests and general societal assessments made by the Danish Energy Authority. Local citizens request more influence on the projects, especially in connection with the distance to the coast. In both cases local citizens requested an increase of the distance to the coast. However, the committee and subsequently the governmental authorities had to balance this interest with the interest of erecting offshore wind farms and obtaining actual experience with the erection and operation of offshore wind farms. Also technical possibilities and the economy of the projects have had to be considered.

Another striking issue in the review of the two processes is that the preconditions of the mentioned survey reports (1994, 1995) in respect to turbine size were overtaken by the technological development. The reports were based on turbine sizes of 450 kW and 1 MW of heights of 53 and 83 m. However, due to the rapid technological development within wind power, the turbine size available when the final decisions were made was a 2,3 MW wind turbine of a height of 110 m. This also implies that the preconditions on which the survey reports based their assessment of possible locations and distances to shore had changed. However, this did not result in a new approval round or new investigations of the

possibilities of placing the wind turbines further offshore and consequently at greater depths of water. The reason for this must be that the different influential bodies have agreed that it was important to obtain experience with offshore wind power.

Relating the review of the process with the statements of the interviewees a significant conclusion is that the communication from governmental authorities to local and regional authorities and to the local communities about the balancing of the objections with the financial aspects, technological possibilities and time has not been sufficient. This particularly applies to the period from 1997 to 2000, when the plans were presented, public hearings held and principle approvals obtained. The governmental authorities could also have been more open about why the projects were completed despite changed preconditions and change of wind turbine size. A more overt approach may have contributed to an enlarged understanding of the basis of decision and reasons for proceeding despite the objections. Hearing answers from the different public hearings indicate opposition to the plans among local and regional authorities. The following analysis of the local newspapers' coverage of the two processes along with interviews made with persons from the local communities amplifies this statement.

Statements from some of the new interviewees have put focus on the fact the process has presumably not been a matter of interests for the local public in general. Local politicians, municipal officers from local and regional authorities and some NGOs have been involved, interested and critical about different aspects of the process. But it might not have been a widespread local concern.

### **3 Local news coverage**

The processes with planning and erection of the two offshore wind farm have been covered by different newspapers. In the reports from the investigation of the local receptions of Horns Rev Offshore Windfarm and Nysted Offshore Windfarm an analyses of the coverage in the regional newspapers are presented. Most of the analyses were documented in the annual report for 2003 so this annual report will concentrate on the new findings in the follow-up analyses of the regional newspaper, Lolland Falster Folketidende.

The purpose of the analyses of the two regional papers has been to:

- Identify any debate on the offshore wind farms and to identify which attitudes were presented in the regional newspapers and by whom.

As it appears from the review of the process, the selection and presentation of locations for offshore wind farms dates back to 1997. It may be difficult for interviewees to remember this far back, and written sources are thus important to be able to give an account of attitudes and thus to be able to analyse changes in attitude. Based on the identification of topics for debate another purpose is thus to:

Analyse the role played by the newspapers in the formation of past and present attitudes towards the offshore wind farm in the two local communities.

The local newspapers' presentation of the matter was assumed to affect the local attitudes towards the wind farm. However, it is not a one-way process where the newspaper affects its readers. To varying degrees, the readers in the two local communities also express different opinions on the wind farms in specific and on wind power in general.

#### **Conditions for news coverage**

In the two reports on each case the analyses of the regional newspaper is introduces by some relevant assumptions about media in general and news coverage of environmental issues in specific. These assumptions are used to structure some of the important findings:

**The subjects related to the wind farm (or wind power in general) have had to coincide with an event.**

This fact explains the big variation in the coverage from 1997 to 2004. In the first years the coverage dealt with local and regional authority reactions to the plans, meetings between local and central authorities etc. In 2000 and 2001 there was very weak coverage as most activities took place on a central level. In 2002 and 2003 the news were constituted on the establishment of the park. The operation of the park is not interesting and the coverage has been low until publication of results from the natural scientific investigations of the effect of the park on the environment in 2004. In 2004 the light markers on the turbines at night have also been an issue.

**No complex explanations**

The analyses have also confirmed another of the assumptions about media coverage of environmental problems: The question “why” is rarely asked. This means that the background is rarely discussed. In the Nysted case this tendency is stressed by the focus on regional perspectives. The coverage of the course of events generally conveys viewpoints of local and regional politicians and NGOs. Several times background information explaining the park and pointing at the environmental reasons was given by readers in debating points.

**Conflict sells more papers than consensus**

It is assumed that there is more news value in conflict than in consensus. The tendency to focus on the viewpoints of the local and regional participants in the process and only few times to bring arguments from central authorities contributes to the impression of conflict between the region and the central authorities. This is furthermore seen in a tendency towards personification of the matter. This means that the presentation of the case and the course of events in general are turned into the Minister of Energy and Environment of that time’s own personal project. In this way he became the opponent of the local communities. The lack of environmental explanations behind the plan to construct the wind farm makes it easier to build up a conflict.

**Occupational effects can change attitudes towards wind energy**

The Medias are also influenced by the public opinion. This can explain the change in the newspapers attitude towards wind energy in general and the wind farm in specific. In 1999 Vestas placed a production of wings for turbines in the region. This has given occupational advantages. Especially from 2002 and forward it is very evident that the newspaper has changes its attitudes. Now the wind farm and other places in the region where experimental turbines are erected are seen as “showrooms” for wind technology to the rest of the world.

**Influence on the readers**

The inclusion of 8 respondents from the environmental-economic questionnaire and 2 persons from the local tourist trade in the follow-up investigation has provided the analyses with important input. The new interviewees have given a broader variation among the respondents. The first investigation focused on

respondents that had articulated public opinions on the wind farm earlier in the process. Interviews with some of the new respondents put focus on the fact that some people are not interested in wind energy or an offshore wind farm when reading the newspaper. Subsequently the coverage in the regional newspaper has not influenced their opinion towards the farm. It is assumed, though, that if the newspaper frames the coverage of wind energy and the wind farm as a question of higher energy prices more readers are interested and presumably more likely to form an attitude.

## **The significance of newspaper coverage**

The preliminary assumption about the newspaper as an important component in the process of construction of attitudes towards the wind farm has had to be moderated. More likely the coverage in the newspaper has confirmed the attitudes that the supporters and the opponents already had. For readers not interested in the issue before the wind farm became present in the horizon the negative framing of wind energy might though have created a general negative attitude towards wind energy in general.

The environmental economic questionnaire included some background questions that could provide this investigation with some information. One of them is the documentation of the wide spread of the newspaper. 45% of the respondents in the questionnaire read the paper. That makes it a very important source for information on local and regional news and for local debate. The newspaper is farther more widespread than the regional paper at Horns Rev, Jyske Vestkysten, which is read by only 29% of the respondents in the Horns Rev-sample.

## **Differences between the two cases**

The difference in the circulation of the two regional newspapers might explain some of the important differences that the analysis have pointed out:

- 1) There has been a difference in the extent of coverage in the two papers: At Nysted there was an early coverage (from 1997) and the subject has been covered regularly, depending on the news value. At Horns Rev there was a remarkably late coverage (1999) and the subject has been limited covered.
- 2) The local debate has been very different. In both cases the newspaper have expressed negative attitudes towards the park. At Nysted the readers have been very active debating pro's and con's. At Horns Rev the debate has been very limited.

## **Recommendations**

One of the purposes of the analyses of the two regional newspapers has been to identify any debate on the offshore wind farms. The analyses have shown that there was a debate at both sites and furthermore there were oppositions to the plans early in the process (1997-2000). In future projects it can be recommended to pay attention to local medias to identify local reactions and to be able to make an early dialog with the public.

## **4 The local communities' reception of the wind farms – analyses of interviews**

Analysis of interviews follows below; in the 2003 study interviews were made with 12 local social agents in connection with Nysted Off-shore Windfarm; local politicians, municipal officers, NGO's and citizens who had expressed a public opinion about the wind farm. The interviews described the attitudes before the construction of the wind farm. In the 2004 study 10 of 12 persons from the first study were re-interviewed. The study was expanded with 2 persons related to the local tourist trade and 8 persons chosen among respondents in the environmental economic questionnaire. Hereby persons who had not formulated a public opinion on the matter were included.

In both studies the interviewees voiced both their own attitudes and their impressions of the general atmosphere experienced during the previous course of events as well as at the time of the interview. The interviewees' remarks are expressions of subjective opinions; therefore, these remarks must not be considered objective statements on the matter and the wind farms.

### **Selection of interviewees**

Before the results of the analysis are presented, a general survey of the empirical material is prepared. The investigation in Nysted comprises interviews with 12 persons in the first round and 10 in the second. In respect to attitudes to wind energy in general and the plans for the farm 22 opinions are counted for. In respect to changes in attitudes only 20 persons constitute the attitudes as only 10 persons from the first investigation was re-interviewed in 2004. The 20 persons are as follows:

- Local politicians (3 persons)
- As municipal officers employed within local and regional authorities (2 persons)
- Persons with a commercial interest on the matter (2 persons)

- Representatives from involved NGOs (3)
- Citizens, who have expressed their opinions of the wind farm in public (2 persons)
- Respondents from the environmental-economic questionnaire (8 persons)

## **General attitudes to wind power**

Before presentation of the pros and cons in relation to wind farms, it may be relevant to take into consideration the interviewees' attitudes to wind power in general. If a person is opposed to wind power, he is likely to be inclined towards the plans of a wind farm in a different way than a person who on grounds of principle supports wind power. The extension of the number of respondents in the follow-up investigation has not altered the impression that there is a broad consensus for wind energy. It is significant that all the interviewees but three agreed that wind power is regarded as "common sense" as to the utilisation of a natural source of energy. Thus a wide consensus on wind power among the interviewees is demonstrated. This result can be confirmed by data from the quantitative questionnaire. As mentioned above three samples have been conducted: Two local samples from the Nysted and Horns Rev areas and a national sample. In all three samples more than 80% stated that wind power should be used to reduce the emission of CO<sub>2</sub> (Ladenburg et al. 2005).

Despite this positive attitude towards wind power the major part of the interviewees was simultaneously opposed to or critical to the placement of Nysted Wind Farm. This result cannot be confirmed by the quantitative data:

The three samples have been asked about their attitudes towards the existing off-shore wind farms. 51% in the Nysted-sample is very positive and 33% are mainly positive. This is different from the Horns Rev-sample where the respondents are represented more frequently in the category "very positive". The numbers of respondents stating to be "very negative" or "mainly negative" are very low in all three samples but still the respondents from the Nysted-sample tend to be less positive towards Nysted Off-shore Wind Farm (Ladenburg et al. 2005).

Apparently a weakening of the qualitative finding but a breakdown of the sample on postal codes shows a difference in attitudes in different municipalities. The qualitative interviews are concentrated on Nysted and Gedser from where the farm is visible. In the questionnaire the respondents from Gedser show the same tendency as the interviewees from the town: the acceptance and positive attitudes dominate in this area. In Nysted the tendency is a division of the respondents in two equally big groups of positive and negative attitudes. Unfortunately the findings in the breakdown of data are not statistically verifiably.

A third result from the qualitative investigation that can be compared to the quantitative data is a tendency among the interviewees to prefer wind turbines on the sea to placement on land: 11% in the Nysted-sample is negative towards existing land based wind turbines whereas 22% is negative towards an increase in land based wind turbines. 9% in the Horns Rev-sample was negative towards existing land based wind turbines and 20% was negative towards an increase in land based wind turbines (Ladenburg et al. 2005).

## **Positive attitudes in 2003 and 2004**

The 2003 study identified some arguments for the positive attitudes and the same were found in the 2004 study:

- **Environmental considerations:**

The supporters were concerned about the prospect of a man-made greenhouse effect and the consequences of climate changes caused by the emission of CO<sub>2</sub>. To some supporters this concern implies a moral obligation for Denmark to take energy actions in order to reduce the emission of CO<sub>2</sub>. Other respondent in this group are not concerned about the CO<sub>2</sub>-emission but other types of emissions.

The quantitative data reveals a surprisingly large amount of respondents that agree in that “the increasing greenhouse effect is mainly man-made”:

In the Nysted-sample 84%; in the Horns Rev-sample 89% and the national sample 87%. 14%; 11% and 9,9% respectively disagree.

Similar large numbers agree that the greenhouse effect is a problem to be taken seriously:

In the Nysted-sample 93%; in the Horns Rev-sample 94% and in the national sample 96%.

- **The occupational impact of the wind turbine production:**

Is another main argument for positive attitudes. The respondents stressed the national occupational impact as well as the regional. In continuation of the occupational impact, another reason for supporting the wind farms is export earnings. Several of the supporters emphasised Denmark’s prominent position within wind power; and in their opinion the wind farm erection should be utilised in order to preserve and enlarge Denmark’s position.

Several interviewees in this group are also very fascinated of the wind power technology and were very interested in the activities during the process of building the wind farm.

- **Energy supply**

Was a third argument found in the first study? This argument was stressed by several of the new interviewees and can be explained by an increasing focus on geopolitical instability.

## **Negative attitudes in 2003 and 2004**

In the first investigation the following arguments were identified:

- **Aesthetic reasons.**

The considerations focused on the unspoilt nature in the area. Several respondents found that the local landscape was unique and the idea of spoiling such unique scenery was unthinkable to some of the respondents. The same tendency was found at Horns Rev. It puts focus on a discrepancy between an overall national appointment of suitable placements and a local appreciation of the landscape.

Local identity is related to local nature and a decision from central authorities implying changes in the landscape is often received as an attack on local identity. Some of the local resistance at Nysted and Horns Rev, as well, can be interpreted in this respect.

Presumably the construction of local identity is related to experiences with the nature. Quantitative data show that the residents in the Nysted-area have a more intensive use of nature than the respondents in the two other samples: 61% is by the beach once or more a week in the summertime. In the winter the number is 34%. In the Horns Rev-sample the number is 39% in the summer and 14% in the winter. In the national sample the numbers are 45% and 10% respectively.

In 2004 the opponents still stressed the aesthetic argument. In 2004 another argument against the park came up: the light markers on the turbines which are very visibly at night at a very long distance: 15 km. Some interviewee assumed that the lights were reason for some of the resistance against the park and thought it would vanish if the problem with the lights were solved.

- **Negative effects on nature**

In the first investigation several interviewees were concerned the wind farm should have negative effect on the bird life and seals and porpoise.

For most opponents this was no longer an issue in 2004. They had noticed the presentations of results from investigations of the effect on nature and had been calmed. Few of the new interviews in the follow-up investigation rejected the results and maintained a concern based on their own intuition.

## **Changes in attitudes**

The arguments in favour of the wind farm have been identical in 2003 and 2004 whereas one of the arguments against have almost vanished leaving the main argument against the park to be the one based on aesthetics and considerations about the landscape. But a new argument had risen; the light markers on the turbines.

In the 2003 study 6 interviewees were supporters and 6 were opponents. The new interviewees in the 2004 study have had to account for their opinion about the park earlier in the process. That leaves 9 persons in favour of the park earlier in the process and 8 persons against it. At the same time the extension of interviewees have accentuated a need to operate with more categories of opinions than presented in the introduction, i.e. support, opponents and acceptance. The new categories are: neutrality and scepticism.

**The situation in 2004 was as follow:**

10 interviewees supported the farm: 7 interviewees had the same positive attitude; three formerly sceptical persons were now supporters. The reason for the change in attitude was the fact that the park had no negative consequences for sailing ships. One other former supporter had changed the attitude to acceptance due to the visual impact of the park.

7 interviewees were opponents: 6 interviewees had the same negative attitude; one former neutral person had changed attitudes due to the visual impact of the light markers on the turbines; one former opponent had changed attitudes to acceptance due to the fact that the park was not perceived to have the expected negative visual impact.

2 interviewees accepted the park: One being the former opponent, the other was the former supporter who had changed attitude because of the visual impact of the park.

1 interviewee was sceptic: 2 former sceptical interviewees had changed their attitude due to the fact that the farm did not have the expected negative visual impact.

The overall impression is that the attitudes have been quite stabile, but the inclusion of the new interviewees has made the picture a bit more complex. It is interesting to notice though that there seems to be a tendency that opponents have been confirmed in the negative opinion. An explanation can be that the negative opinion is based on an aesthetic consideration. Similarly, there is a change within the positive opinions about the farm: some supporters are less cocksure in their support to the wind farm because some citizens claim to be affected by the negative visual impact from the light markers. Other supporter are still very convinced of the advantages of the wind farm and do not mind the changes of the landscape.

## **Construction of attitudes**

The extension of the number and type of interviewees has put focus to the point that attitudes to the wind farm can be constructed together with the erection of the farm. In 2003 the interviewees had a formulated attitude to the farm and had had it for several years. That was very valuable in the first process of gathering information about the park and the local reception. In 2004 some of the interviewees chosen among the participants in the questionnaire have not had an attitude early in the process. They have not been interested in the matter and hence they have not been aware on information about the issue. When the wind farm became visible in the horizon they made their mind about it and became interested in the matter for instance in the coverage in the regional paper.

## **Views on the process**

### **EIA report and visualisation**

In the 2003 study there was critique of the way the decision-making processes had been conducted. Both supporters and opponents were critical. At Horns Rev the local perception of the process was a significant reason for the opposition. At Nysted the critique is not the main reason for opposition. As stressed several times the new interviewees provide new angles on the issue: they were not involved and interested in the process as the first interviewees and did not pay much attention to the conflict between the local and regional authorities and the central authorities.

One element in the process has had the attention of many interviewees: The visualisation report as a part of the EIA report. In 2003 the tendency at Nysted was resignation to the fact that the visualisation was not consistent with reality. An explanation was that it was difficult to estimate. In 2003 the interviews were made while the first turbines were erected. In 2004 the interviewees had one year's experience with the presence of the turbines and their visual impact. This had changed the attitudes to the visualisation. Now several interviewees felt that the local community had been deceived by the central authorities and the building owner. They were perceived as having diminished the visual impact on purpose. It was also criticized that the transformer station and the red light on the turbines had not been shown in the visualisation.

One interviewee stated that the feeling of having been deceived in the first process might lead to resistance towards new projects for offshore wind farms.

### **Level and timing of information**

Finally, the level of information has been criticized both in 2003 (at both sites) and 2004. In general, all interviewees agree on the necessity of further information on the matter as from the time of presentation of the initial plans in 1997 until the time when the final decision was made by the relevant authorities in the end of 2000. The analyses of the coverage in the regional newspapers have shown that central authorities and the owner cannot rely on the newspaper in relation to sufficient and neutral information.

A new finding in 2004 is a wish for better information about the results from the investigation of the impact on nature. As shown it can actually overcome some of the resistance. Some interviewees also express some new doubts about for instance life-cycle-analysis of the turbines. The presence of the wind farm might cause new questions and doubts and it is important that they can be passed on to relevant bodies and answered.

## 5 Conclusions

The analyses of the reception in the two local communities and the comparison of the two cases have pointed out some similarities and differences leading to some overall conclusions:

- **The process**

From the beginning, scepticism regarding the plan existed in both communities. The interviewees who had been involved in the decision making process at both sites have stated that they were ignored and it was perceived that the decision of wind farm erection was made in advance by the central authorities. At Horns Rev the scepticism changed into actual opposition when the locals felt ignored by the central authorities. The scepticism did not turn into opposition at Nysted but the experience from this, first process is claimed to cause aversion to the plans for a new wind farm.

Regardless of the size of the opposition, an important point of the analyses is the fact that the opposition was much more widespread than the governmental authorities apparently noticed. Furthermore, this indicates that in future projects it may be appropriate to establish an early dialogue.

- **The coverage in the regional newspaper**

In both cases the decision process for the wind farms has been covered by the regional newspaper. The timing and extent have varied as well as activity from the readers in respect to debating points. In advance it was assumed that the newspaper could influence the attitude towards the wind farm. In both cases the newspaper has expressed negative attitudes towards the plans and wind energy in general. The last years (2003 and 2004) both papers have changed the attitudes as wind turbines have increasingly been related to national and regional occupational interests and export. The analyses of the interviews have pointed to the fact that the papers have not changed the attitudes of readers who were already interested in the matter and being pro or con. Other readers have apparently not taken interest in the matter and presumably not taken notice of the coverage. Unless it has been framed in a way that has a broad interest, i.e. higher prices on electricity due to wind power. This might have created a negative cultural resonance for negative opinions towards the wind farm.

The second phase of the Nysted study has pointed out that information about the results of the investigations of the impact on nature is important. It contributes to overcome some of the negative attitudes towards the farm based on fear of negative impacts on nature.

The analyses indicate that it is important to pay attention a local debate in a regional paper in future projects and to use the paper to inform the local community.

- **Similarities in positive attitudes towards the wind farms.**

At both sites the supporters stress the environmental argument for being pro the wind farm. Many are concerned about the CO<sub>2</sub>-emission and argue that Denmark has an obligation to reduce the emission. Others are more concerned about other kinds of emission and doubt the assumption about green house effect. Some of the supporters have participated in the local debate in the regional paper defending the plans for the wind farm. The occupational effect of production of wind turbines in Denmark is another important argument in favour of the wind farms.

- **Differences in negative attitudes towards the wind farm.**

The interviewees at both sites were concerned if the presence of the wind turbines and their visibility would alter the scenery negatively and at both sites, the regional and local authorities have made attempts to erect the wind farm further off the coast. The analyses have demonstrated the apparent existence of different arguments for the opposition in the two communities; at Horns Rev the opposition was based on substantial business interests in tourism; in Nysted the interviewed opponents wished to preserve nature unspoilt by human hands.

The fact that the view on aesthetic and landscape is based on different concerns at the two sites can explain the extent of changes in attitudes in the two local communities.

- **Changes in attitudes**

A substantial purpose of the entire investigation is to detect the scope and direction of the change of attitudes:

In both cases it can be concluded that time and adaption to a situation may change the attitudes towards offshore wind farms. At both sites interviewees have stated that the difficulty to imagine how 110 meters high turbines will look out in the water (10 km at Nysted and 14 km at Horns Rev) causes some concern.

In both cases the general local attitude is reported to have changed to acceptance by the interviewees. One year after the erection the wind farms are no longer a matter of debate in the local communities.

The opposition seem to have been louder at Horns Rev than at Nysted. But it also seems as if the attitudes were more easily changed when it turned out that the tourist did not disappear because of the visual change of the landscape.

It seems as if the aesthetic argument is more solid at Nysted and hence the opponents have maintained their negative opinion.

- **The need for better information**

Additionally, importance must be attached to thorough and professional information in the entire process. The local authorities do not necessarily feel obligated to inform about the process locally, and thus only the local newspapers bring up subjects for discussion. This has been demonstrated at both sites. Most interviewees at both sites have stressed the importance of information. During the decision process information is important to show the local community respect. The information might not convince the opponent but they obtain a more qualified basis for their opinion. The analyses of the papers have pointed on the importance for information about the background for the plans and later the decision. Also myths are easily created and information can meet some of these. The recommendation from most interviewees are to invite the citizens to meeting to give room for people to express their concerns and raise their questions in a more informal way than public hearings.

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