

# Wind Power Acceptance among Young People

Case Ingå-Raseborg

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## OPINNÄYTETYÖ

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### Tiivistelmä

Tutkimuksen tavoitteena oli selvittää, kuinka Inkoon ja sen naapurikuntien nuoret hyväksyvät tuulivoiman ja tuulivoimalan, jota suunnitellaan rakennettavaksi Inkoon-Raaseporin rannikolle. Toinen tavoite oli kehittää paikallisille nuorille suunnattua tiedotusta, joka saisi heidät hyväksymään tuulivoiman ja tuulivoimalan paremmin.

Tutkimuksen teoriakehys koostuu R. De Youngin (1993) tutkimuksesta, joka keskittyy ympäristöasenteisiin ja niiden muuttamiseen sekä suomalaisesta (Cantell ja Larna 2006) ja hollantilaisesta (Kuhlmeier et al. 1999) tapaustutkimuksesta, jotka käsittelevät nuorten ympäristötietoja ja heidän suosimiaan tiedotusvälineitä. Nuorten käsitystä ja tiedontarvetta tuulivoimasta tutkittiin kouluissa järjestetyissä työpajoissa kvalitatiivisen tutkimuksen, puolistrukturoidun haastattelun ja focus groups -menetelmien avulla.

Nuorten käsitys tuulivoimasta jakautui laajalle alalle. Tuulivoiman kokonaiskuvan parantaminen olisi suotavaa ja se voitaisiin saavuttaa tarjoamalla objektiivista tietoa sekä tuulivoimalan ympäristö- että ihmisvaikutuksista ja lisätuulivoiman tarpeesta, Inkoon-Raaseporin tuulivoimalan toiminnoista ja tuotannosta. Tiedottaminen tapahtuisi parhaiten internet-sivujen hyödyntämistä ja erilaista koulussa tapahtuvaa oppimista yhdistämällä.

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Kieli: Englanti Avainsanat: tuulivoima, tuulivoimala, nuoret,  
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## BACHELOR'S THESIS

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### **Abstract**

The aim of the study was to find out how young people in Ingå and its neighbouring communities accept wind power and the Ingå-Raseborg wind park, which is planned to be built on the coast of Ingå. Another aim was to develop enhanced information for the local young people about the wind park to make them accept the project better.

The theoretical basis of the study consists of the researches of R. De Young (1993) about environmental attitudes and changing them as well as Finnish (Cantell and Larna 2006) and Dutch (Kuhlmeier et al. 1999) case studies about and young people's environmental knowledge and preferred information channels. The local young people's need of knowledge and information were investigated in work shops in schools in Ingå, Karis and Ekenäs by using the methods of qualitative research such as focus groups and half-structured interview.

According to the study, the young people had a broad knowledge of wind power and information about different aspects of wind power. Enhancing the overall picture of wind power is beneficial and would consist of objective information about environmental and human impacts and the need for wind parks, the functions and production of the Ingå-Raseborg park. The information could be distributed via a combination of Internet websites and different forms of environmental education at school.

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## EXAMENSARBETE

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### Sammanfattning

Avsikten med undersökningen var att ta reda på hur ungdomar i Ingå och dess grannkommuner godkänner vindkraft och vindkraftverket i Ingå-Raseborg, som man planerar bygga i Ingå. Ett annat mål var att utarbeta bättre information till ungdomarna om vindkraftverket, så att de skulle acceptera det bättre.

Arbetet bygger på undersökningar av R. De Young (1993) om miljöattityder och hur man kan ändra dem och på en finsk (Cantell och Larna 2006) och en holländsk (Kuhlmeier et al. 1999) case-study om miljöinformation och hur ungdomarna helst vill få den. Vad ungdomarna i Ingå, Karis och Ekenäs vet och tycker om vindkraftverket undersöktes i skolor genom semistrukturerade intervjuer, en kvalitativ undersökning och focus groups – metoden.

Ungdomarna hade rätt varierade åsikter om vindkraften och behovet av mera information om hur vindkraften kan användas. Att förbättra helhetsbilden om vindkraften skulle vara bra. Objektiv information om miljö- och mänsklig påverkan och om behovet av vindkraft och Ingå-Raseborgs vindkraftverk med dess funktioner och produktion skulle behövas. Informationen kunde ges via en kombination av internetsidor och olika former av miljökurser i skolan.

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Språk: Engelska Nyckelord: vind energi, vindkraftverk, ungdomar, miljöåsikter, godkännande, kvalitativ undersökning, kommuniké

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## 1. Introduction

Wind power is a renewable source of energy, which has become more and more popular in the world for the past twenty years. The estimated value of total electricity production capacity is 590 GWh (gigawatt hours) in 2011 according to a study by Ministry of Employment and the Economy of Finland. It is an emission free way of producing energy and safe to the environment, but it still divides opinions among people. The purpose of the thesis is to study attitudes to acceptance of wind power and a nearby wind park by young people. The young people in this study originate from the Ingå area and its neighbourhood, since there is an attempt to establish a large wind power park in the coming years. The contents and form of information and the appropriate information channel, which would make them accept wind power projects better are also dealt with. The role of information in early environmental education and in changing attitudes will be presented as tools for better acceptance.

Young people's knowledge of the environmental field has been a research topic before in several studies. Investigating and changing environmental attitudes among young people has been a current research theme especially in the Netherlands as we will learn later in the theoretical part. The theory by R. De Young (1993) explains the relevant information techniques which could be used in enhanced environmental education. The importance of stakeholder involvement has been a current topic in environmental projects for a long time, but the acceptance of wind power projects among young people has not been examined comprehensively at least in Finland. Further investigation about the need for information of young people is required since the young people of today are the decision makers, customers and investors of tomorrow. This is one of the most important reasons why young people are the target group in the study. On the basis of this, the core questions for the study are:

- What is the knowledge and understanding of wind power among young people in the Ingå-Raseborg region?
- What kind of information would young people need and want in order to better accept large wind park projects or any environmental projects?

A Dutch study by Kuhlmeier et al. (1999) suggested that that young people know fairly little about the environment and sustainable energy. There has been a lot of debate about the effects of the wind power park, which means that another suggestion could be that young people do not support the park at all according to what they have learned about it at home (a survey by Suomen Merituuli in 2010). Based on the study by Cantell and Larna (2006), attractive media for information distribution to young people could be popular Internet sources such as Facebook or Twitter.

The aim of the study is, after finding out what knowledge young people had about wind power, to concentrate on producing a coherent and comprehensive explanation of the topics, type of information and appropriate media, which would help young people in the Ingå-Raseborg region to experience the wind park more positively. Another aim is to get the young people's voices heard on the wind park in Ingå-Raseborg to ensure the expression of applicable ideas and the feeling of being listened to as well as being informed about the park's existence. This can also be called the first act of stakeholder involvement among young people.

The topic, acceptance, relates to the discussion about the Ingå-Raseborg wind park establishment, which has been going on since the park has been planned and presented to the public. There have been talks between the establisher, Suomen Merituuli Oy and the public in Ingå-Raseborg who have very divergent attitudes to the park on the coast of Ingå. The thesis work seeks therefore to increase the acceptance of wind park projects in the future through the currently young people and (i.e. the future adults) and the enhanced information.

The theoretical approach to the topic will be done through studying a theory basis consisting of researches about information channels, environmental attitudes and education. Solving the acceptance issue is attempted firstly by finding out young people's opinions about wind power and the wind park by carrying out a qualitative half-structured interview in workshops in local schools in the Ingå region and then asking what information and via what media they could best learn about the topic. This is done through focus groups, which is more explained in the methods of the study. The research targets, the young people, consist of classes including first-grade pupils from three schools near the same area where the wind park will be established.

In this thesis terms such as environmental education and attitudes serve as the topic of discussion, their role being beneficial tools for a greater acceptance among young people. This thesis is limited not to deal with the opinions of adults in the case “Ingå-Raseborg” wind park neither with vast public stakeholder involvement and information distribution in environmental projects. The project description will not be an environmental impact assessment, but states some of the main characteristics of the wind project. The thesis will not vastly discuss the reasons why young people possess the opinions they do, nor the differences between schools. The most relevant part, the acceptance, will not benefit from dealing with such topics. This thesis will provide valuable information for environmental projects on how to improve their information to young people.

## **2. Case description**

### **2.1 Project description of the Ingå-Raseborg wind park**

The Ingå-Raseborg wind park project is one of the large wind park projects developed by Suomen Merituuli Oy, the company which is owned by Helsingin Energia and EPV Energia Oy. The target is to establish two wind parks in the Gulf of Bothnia and the Gulf of Finland by following the aims of sustainable development. Increasing emission-free, renewable wind power and Finland’s self-sufficiency in energy are important goals of Suomen Merituuli Oy through the projects. A common target of my thesis and the project is also to facilitate general acceptance of wind parks among Finnish people. Wind power could help Finland develop to the level in renewable energy production of other European countries, such as Denmark or Germany. It is, therefore, a question of the image of Finland, as some EU countries already hold a wind energy share of 7-19 % depending on the geographical location of the country (Suomen Tuulivoimayhdistys).

The wind park itself will be the first big wind power park in the Ingå-Raseborg sea area. The following information about the project is based on the Environmental Impact Assessment by Suomen Merituuli Oy, which was finished in February 2011. The project has been planned since 2006 and it has good technical prospects for being established.



According to the environmental impact assessment, the park should be environmentally sustainable to support the ecosystems in the Ingå-Raseborg marine and land areas. The project area extends along the coast in a 20-kilometre sea area. There are several aspects in the area to be taken into account regarding the nature on the coast. The waters in the area serve as a habitat for several species of fish, invertebrates and mussels and a large variety of sea birds are known to live on the islands off the coast. Actual natural protection areas do not exist in the location where the wind park is planned, but some protected islands are in the neighbouring communities in the Ekenäs-Hangö direction at the closest two kilometres away from the project area.

The locations of the wind mills must be determined carefully with regard to the different natural aspects in the area, which is why the wind park will be developed according to one of the options planned, each having different characteristics. The first alternative, VE0, is the least ambitious of them leaving the project undeveloped. In this option, the needed energy will be produced somewhere else or by using another source of energy. The park will probably not face this option, as the environmental impact assessment, different permits and most of the zoning have already been done and accepted by authorities.

The first option, that sounds more realistic at this point, is option VE1. It would mean building 60 windmills in the project area, as in all of the options including the same energy capacity of 3 MW (megawatts). The speciality of this option lies in the fact that the windmills would be built evenly over the project area, as only one single group. The windmills would also be built in the sea area within the water depth of under 20 meters, but no deeper. In the next option, VE2, the 60 windmills would be placed in four separate groups at sea. Behind this idea lies the need for investigations on whether grouping the windmills would have fewer environmental impacts compared to the one large group of windmills. The suitability of each of the four locations where the windmills would be placed is examined carefully in advance to avoid harming the ecosystems in the coastal area.

The following and final option for now, VE3, is developed on the basis of option VE2 by following the line of organising the 60 windmills in four groups. The plan for the wind park would be to leave all the shallow coastal regions unbuilt, i.e. the shallow areas consisting of depths from 10 to 20 metres would be left intact. The

positive aspects of this are that the effect on people and animals living in the proximity of the mainland would be less impacted by the windmills if they are built further out to the sea. The option which in this case will most likely be preferred is VE3, since it would have the least effects on the landscape, water quality, sea animals, birds, bats, traffic and livelihood of the area and it would produce the least amount of noise and shadow. Pictures of the project area of option VE3 windmill groups can be seen in Appendix 1.

After completing the project, the power park will produce energy using 60 windmills with a height of over 100 metres, the rotor being 100 to 125 metres high. According to Suomen Merituuli Oy, the total energy capacity has been calculated to be up to 300 MW, which would be enough to cover the electricity needs of 250 000 apartments (block of flats). The exact locations of the 60 windmills, each obtaining a power unit from 3 to 5 MW (megawatts), are not decided on yet mainly due to restrictions imposed on the coastal area. There are military refresher areas as well as Natura 2000 – areas in the proximity of the project, which need to be taken into account before determining the exact locations. The park has been planned in a thorough way, so that the windmills would exist at an appropriate distance from certain targets with a special status, such as areas mentioned above as well as other valuable natural and residential locations. The final location as well as the starting time of the project is dependent on the neighbours, different authorities, the environmental impact assessment, in addition to the zoning, which is currently being settled.

## **2.2 The Case: How to make young people accept large wind parks?**

There are several wind projects going on in different parts of Finland, but the big picture of wind as an energy source still varies among people. Total acceptance is still not gained although wind power was introduced already in the 1990's, covering nowadays a share of 0.2 % of the total electricity consumption (Suomen Merituuli Oy, 2010). The European Commission has set a target for renewable energy to account for 38 % by the year 2020 (Suomen Tuulivoimayhdistys), which might be possible in the future if support to the sustainable sources of energy increased. The need for a higher acceptance is great since the increased

sustainable energy supply would reduce the demand for non-renewable energy sources, such as nuclear power plants or coal fired plants. If the public accepted wind parks better, the wind parks would be built more smoothly with fewer delays and more clean and emission-free energy produced.

Suomen Merituuli has aimed to conduct the project without delays through vast stakeholder activity by informing the local companies and residents in the Ingå-Raseborg region about the project in several ways. They have organised public discussion sessions, surveys, hearings, project information events, workshops, environmental impact assessment publishing events, etc. Until now, the target group has been the local public in general, but the idea of the thesis was to find out how young people (from the age of 16 to 17) of the area in Ingå, Raseborg and Karis should be taken into consideration in the project. Based on the research results on their understanding of wind power, developing a new and targeted information system for the youth would be the aim of the thesis.

One reason for the choice of topic is that young people is a rather new target group in stakeholder involvement in environmental projects. Young people's opinions and knowledge of wind power have not been investigated in Finland before. There are lots of other positive viewpoints in the aspect why young stakeholders should be taken into account. An important idea which came up when planning the thesis, was that from all the stakeholder groups of the Ingå-Raseborg wind park, the young people of today will be the ones around when the projects and establishments are finished. After a couple of years, they will be the adults, who, in the future work in the wind power plant and make the decisions in the area. They will be the possible customers of the wind park, the energy buyers, investors and the residents who would be willing to hear about the environmental changes the following projects in the area might cause. They will have the wind park in their sight in case they choose to live in the area in the coming years. Therefore, finding out the appropriate means to reach their attention would be something totally different and new, providing probably a guide for future environmental projects.

In practise, my investigations will concentrate on finding out what young people know about wind power, how they experience a large wind project to be established in their neighbourhood, whether they have heard of the Ingå-Raseborg

wind park and anything related to the subject - its effects on the nature, on people, livelihood and their daily lives.

As a major part of the study, I will also find out how young people would like to be informed about the wind park, i.e. the channel of information. This is important since most young people have different needs of information than adults; at this stage of their lives it might not matter what the energy capacity is now, but the summer jobs the plant could offer. The information channel is important as well; it is much more beneficial to invest in a relevant and modern information source which reaches the young people daily, rather than relying on the most general or cheapest ways which they do not even use. The problem is also that there is information available, but they either do not manage to or care to receive it in the form it exists.

Some of the young people might not know about it being planned in the area and knowing what they expect about the information could be helpful to raise acceptance. This is why the exact fields of the desired knowledge as well as the appropriate media and information channels are to be investigated. During the study, they are free to express their ideas regarding the wind park and wind power as they wish. It might help creating more ideas for the planning of information, but it also generates the feeling that the young are listened to and that they have a possibility of influencing things in their community. Learning that they are stakeholders as well through the Ingå wind project is a valuable experience regarding the future.

### **3. Theoretical approach to environmental information and young people**

The role of theory in this thesis is to highlight the importance of environmental education among young people. One of the most relevant aspects of the theory explains how to change environmental attitudes in order to gain more acceptance of projects, as the case attempts to. A theory by Raymond De Young (1993) presents the tools for attitude altering among the young, which would have a great impact on the acceptance of the wind park. Case studies from the Netherlands (Kuhlmeier et al. 1999) and Finland (Cantell and Larna 2006) present the aspects

of environmental education which show direction of the information that would be provided to the young people in Ingå-Raseborg.

### **3.1 A case study of environmental attitudes among the Dutch youth**

A case study from the Netherlands by Kuhlmeier et al. (1999) highlights the environmental attitudes of young people through a survey made in the 1990's. In a Dutch National Assessment Program, more than 9 000 teenagers around the age of 15 were tested in the field of environmental attitudes and ecological behaviour. The results were the following; 57 % of the young held a positive opinion of the environment, while only 35 % were willing to make (e.g. financial) sacrifices for the sake of the environment. The students' understanding of environmental problems and was not comprehensive, neither did they behave in an ecologically responsible manner.

This is rather understandable, since environmental education in the Netherlands is, according to the survey by Kuhlmeier et al. (1999), rather new and at a low level, where the teachers do not necessarily have sufficient teaching materials. The article explains that this leads to teaching which pays attention neither to the man-environment interaction nor to the solutions and origins of environmental problems. The government of the Netherlands has expressed its concern in the matter by stating that environmental education is one of the most important tools for developing a more sustainable relationship between man and environment.

The solution to the problem according to Kuhlmeier et al. could lie in the government's intention to changing young people's attitudes towards a more positive one regarding the environment. The idea behind this is that the students, who have a vast knowledge of the environment, usually tend to have a positive attitude to it and probably also behave more responsibly. The authors noticed that during their research that young people also appeared to be inadequately aware of the small successes of the Western-European environmentalist movement. If the youth would be more informed about these sorts of positive changes also in the environment, it could help reduce the feeling of powerlessness and neglect of the nature.

The Dutch government's idea of changing the young generation's attitudes to a more positive one by increasing their knowledge in the environmental field in order to gain more respect for the environment is very supportive for my study. In fact, this is the pattern which is more or less desirable to happen in the process of acceptance among the Ingå-Raseborg youth. According to the authors, this would only happen with more extensive environmental education to the young, which would result in a more positive attitude to the nature. After having a more comprehensive understanding of the environment, they would also support the contributions of the wind power park to the local community, perhaps even contributing to the project themselves.

### **3.2 Environmental education – a Finnish case study**

A Finnish study by Cantell and Larna (2006 p. 28, 38-39, 66-67) explains how young people in Helsinki feel positive about the opportunities of general environmental education. The authors conducted a survey of the young and their environmental behaviour and knowledge in ten upper secondary schools and three vocational schools in Helsinki. The target group included 1 332 adolescents of the age from 16 to 19. The material was gathered in 2002 by using questionnaires, and it highlighted, among other things the students' attitudes to the school as the information source for environmental education. According to the adolescents, school lessons and material were an important source of environmental information, and the school was regarded as a major model of environmentally responsible action. Despite this observation and the fact that some environmental issues have been dealt with during the lessons the students felt that environmental issues were not dealt with sufficiently. Especially the issues related to responsibility and affecting the state of nature said to have been brought up too rarely. Some of the students wanted more lectures, where they could learn more about how to act more environmentally sustainably.

Cantell and Larna (2006) also state in their study that the young follow several different media in their daily life, but the most central sources of their environmental information are so called traditional media such as television (news and environmental programs), newspapers and the earlier mentioned school lessons and books. The Internet was not mentioned among the most popular

sources, at least concerning environmental information, although it functions actively as the students' communication and entertainment tool.

The reasons behind the choice of the most important information sources were not highlighted in the study. This does not matter greatly, since the study provides my work with a guideline of how the distribution of information to the young in Ingå-Raseborg could be handled. The good aspects of using school lectures in the wind park case are that the young people of the study regarded them as reliable and among the most important sources of information.

This gives some hope that the young could actually be interested and open to learning about wind power during their school time. Another good viewpoint is that there are several different ways of planning the lessons, which can take different forms according to the students' interests. The workshops will provide a direction of what to concentrate on if they share the opinions with their peers in Helsinki. The fact that the young people felt the contents of the lessons insufficient is not necessarily a threat, but an opportunity for improvement. The curricula could possibly benefit from having more current issues and news about environmental matters according to the authors.

### **3.3. Information techniques and changing behaviour**

Changing attitudes can be a challenge, especially environmental ones. De Young (1993, p 3-4) presents in his theory about behaviour changes that by following an appropriate information technique people will more easily understand environmental problems they are experiencing and the essential behaviour needed to solve the environmental issues. The steps which should be taken to obtain the successful behaviour are also explained. The technique suggests that when people start understanding why and how to change their behaviour, they will also start acting according to a more considerate behaviour. De Young states that increasing the people's awareness or knowledge about the environment and its issues has a great possibility of changing the people's attitudes. The change in thinking may then result in the individuals taking appropriate action for their environment.

Appropriate information techniques, which may help in accomplishing the desired change of attitude are also introduced in the article; prompts, e.g. “Be bright, turn out the light”, environmental education curricula, guide books and magazines from the field of the environment, as well as video training systems and applying attitude leaders in e.g. waste handling programmes. Although the theory was developed in 1993 and not directly for young people, the information techniques and ideas presented by the author are still very applicable to my study. Education curricula can be applied to school time learning, prompts usually spread fast among the young who love to play with the language and guidebooks and magazines could be developed in a modern, fresh, entertaining and yet informative way targeted to young people. Attitude altering and behaviour change are both issues which affect acceptance through learning more about the environment. Introducing these techniques and ideas to the young in Ingå-Raseborg could result in higher acceptance if used regularly.

The young people living in or near the wind park area might have very diverse attitudes towards the project. According to a survey by Suomen Merituuli in 2010, there are people who support renewable energy sources, but only partially accept wind power. One of the aims of the enhanced information provided to the young is that it could benefit their image of the wind park in a way that the assumed noise, flashing, landscape and other suspicious viewpoints could be compensated totally.

Obtaining a better understanding due to enhanced knowledge of wind power, its benefits, possibilities and harms to the environment would result in a higher acceptance. If the negative aspects could not be compensated with the benefits of the park, a more realistic and comprehensive information about the actual harms and positive and negative aspects could help build more trust in the wind park.

## **4. Methods**

### **4.1 Qualitative research**

The methods of the collection of information consisted of using qualitative research methods in the form of workshops, where focus groups and half-structured interviews with the youth were used. There was a strong need for objective and fresh information about their knowledge, prejudices and wishes



before any conclusions regarding targeted and effective information systems could be developed.

Qualitative research methods were chosen since the focus of the study lied on the contents of the research rather than in the number of expressed opinions. If the quantitative research had been used as the method in the study, it would have formed the work shops and the collection of answers in a totally different way and given the answers in a form which might not have been beneficial for the study. The aim of the investigation was not to form accurate trends or to calculate percentages of the opinions of wind power or to compare the schools, which is also why the qualitative research fits the study well.

Having only three schools participating in the workshops, performing a qualitative research made it necessary to concentrate on the quality of the answers rather than the number of answers. Using the qualitative research method allowed the study to leave room for new ideas and attitudes, which might not have fitted in any scale in the quantitative research answer sheet.

#### **4.1.1. Focus groups**

I used focus groups in the workshops, which is a type of interview including a large group of people, where one topic is discussed at a time (Bolton University). The discussions were made in groups of the people at a time in Swedish since the students' mother tongue was mostly Swedish. This enabled them to talk more confidently and extensively about wind power, which might not have been possible in Finnish. Using focus groups in my thesis was useful, since it allowed me to collect relevant, fresh and informative data. The chance of hearing reasons and resource allocation was beneficial as well, which is something a questionnaire could not have done.

In the past focus groups have had a slightly unfavourable image since some of them have been conducted in a manipulative way, where the answers have been fitted to the expected framework. Instead of this type of approach, engineering the students' opinions was avoided and they were encouraged to talk whatever they wanted about the themes which were presented; only this way could they talk openly and freely.

A common problem with the focus groups is that it might be difficult to get people to participate in the discussion if they feel intimidated by the interview situation. This was the situation at the very beginning of the focus groups, but when one student started talking, they all warmed up increasingly and joined the talk. The choice of focus group participants is another issue which was handled by taking one random first-grade group from each school. The earlier knowledge of the students was not tested before the workshop to ensure that the group would be as normal and random as possible.

The estimated time of each discussion kept the group talking for at least fifteen to twenty minutes. As a back-up, some sub questions had been developed in case the students needed some help in understanding the concepts used during the discussion. The workshops were made with only one first-grade group from each school to avoid the material increasing to be unnecessarily large. The large group size was necessary, since the schools were reluctant to giving much more than one lecture of their time to my work. To save time, the workshops were conducted with each first-grade group as two smaller separate groups, having one group dealt with at a time. The discussions were recorded by using tape recorders, as a back-up to the notes that were made during the students' speeches.

#### **4.1.2 Half-structured interview**

Using focus groups offered a good opportunity of applying half-structured interview as the tool for discussion. Flexible, allowing and broad questions were meant to raise new ones and allow some space for the students' diverse thoughts. Half-structured interview turned out to be a good choice, since it encourages a two-way communication instead of plain questioning. To the people who are interviewed by using this method it is also not as intrusive as a structured interview, which proved to be a good choice to the ones who might not feel very comfortable in a new situation. Many times during the workshop the question itself did not necessarily raise discussion, but it created new questions to us interviewers, which is a good example of two-way communication.

Another character of half-structured interviews is that using the method usually confirms what the interviewer already knows, but leaves space for learning (FAO). Since not many assumptions of the outcome of the workshops existed, the learning was especially beneficial regarding the study. Similarly as in using focus

groups, the reasons behind answers were also explained, which resulted in gaining a better understanding of the students' knowledge.

After the workshops, the outcome of the discussions was collected in one place, a laptop. The recorded discussions were listened and written on a laptop in addition to the notes which were made during the workshops. Together they formed the results of the workshops.

## **4.2 The gathering of opinions**

Firstly, contacts were made to two upper secondary schools in Karis and Virkby, and one vocational institute in Ekenäs in order to arrange the workshops as a part of the students' environmental education lecture. The schools were selected by their availability and possible content of Ingå-originated students. Since the wind park will be in Ingå, the final trio of schools consisted of Karis-Billnäs Gymnasium, an Upper Secondary School in Karis, Virkby gymnasium, another Upper Secondary School in Virkby near Lojo, and Västra Nylands Yrkesskola Axxell, a Vocational Institute in Ekenäs. There were not many Ingå-originated students in the schools that were cooperative, but the views of young people in general about wind power were much appreciated. Virkby gymnasium was chosen due to the fact that it is the school where the most students from Ingå study. Axxell Vocational School and Karis Gymnasium were located in the Ingå-Raseborg direction, which is why they were included as well.

After having agreed on the workshop times with the schools, the workshop was prepared to start with a short introduction of my study followed by the discussions, where I and my assistant conducted short discussions with the students about the selected themes considering wind power and the Ingå-Raseborg wind park. The age of the students (16 to 17) was based on the desire of involving first-grade groups from upper secondary schools in Ingå-Raseborg region since the students would then be old enough to possess some information regarding wind power. The groups were not desired to be too selected, meaning that the students had a similar educational background, which is why older people from e.g. universities of applied sciences were not included. Involving other age groups in the study would have produced such an extensive and varying set of opinions that an integrated information system would have been hard to develop to meet all the needs for

information. Investigating other age groups' opinions might not have been even possible, since the time limit of the study and the schools was very strict. The schools that participated in the study were the only ones in the whole Ingå-Raseborg region which had time to the thesis work. This is also the reason why only one school from Ingå was included in the study.

Four open questions were formed, which can be seen in Appendix 2. The number of questions kept the discussions short but targeted and comprehensive. More questions would also have exceeded the time the schools wanted to spend in the workshops. The most relevant themes were how the students feel about wind power, what information they would like to have about it and via which information channel, as well as any ideas about the wind power park. I did not want the teachers to influence the student's opinions in any way so the teachers were not included in the workshops. Due to this, the discussion leader had to have a strong authority, otherwise the young would not take the discussions seriously.

## **5. Results of the work shops**

Below the results of the workshops are stated and arranged according to a system of one question at a time including the answers to the question from all the three schools. The first workshop in Karis-Billnäs Upper Secondary School was brief since the target group consisted of only ten firstgrade students. The pupils seemed to be interested in the workshop, and they replied more actively than what was assumed. The next workshop in Virkby Upper Secondary School was significantly different from the first one in Karis Upper Secondary School. The class consisted of two groups of nine to twelve people, the number of Ingå- originated people being altogether three. The final workshop was conducted in Ekenäs and included two groups with 20 students.

### **5.1 Understanding of the wind park among the students**

In Karis-Billnäs Upper Secondary School six out of eight students regarded wind power as a rather positive issue, but mentioned other energy sources such as wave and nuclear plants as more effective in energy producing capacity than wind power. The rest two persons were uncertain about their views of wind power. Some inaccurate figures about the energy productivity and the number of wind mills in Europe a couple of decades ago were mentioned. The life time of 40 years

of the windmills was brought up as well. When asked about the knowledge concerning the effects of wind power plants, only noise and bird collisions were mentioned.

The students did not understand why they should be interested in knowing about wind power. The harms to the landscape, animals, soil, waters, tourism, people, livelihood, the economic situation of the project area did not awake any interest among the students either. They thought that the effects would not be significant, especially if the windmills would be placed in the sea as I had mentioned. Even the effects on the landscape were regarded as minor, since "The windmills do not cause harms even along the Hanko-Tammisaari road, even if they are big.". The students did not know about the Ingå-Raseborg wind park project area, but remembered seeing some headlines at times in the local newspaper, Västra Nyland. They suspected that the wind in Ingå would not be enough to run a whole wind park.

The first group of Virkkala Upper Secondary School, consisting of nine students, had somewhat different information needs and opinions about wind power. None of them said that wind power was positive, and a few did not have a clear opinion about it. The fact that three of them were from Ingå did not affect their view much. The students had no earlier information about the Ingå wind park project and after hearing about it, they almost immediately informed that nuclear power is a better alternative. This was based on their view that it is a more efficient energy source and because the nuclear waste could be sent to Sweden. They mentioned bird collisions with wind mills and also reading newspaper headlines about energy issues in general. Some boys of the group could describe the technology behind energy production and turbines.

The second group was more positive about wind power; six out of nine had a good impression about it, while only one person was negative about wind power. The rest two did not feel anything special about the issue. The wind power supporters mentioned it to be ecological and good, while some said the mills looked ugly. The fact that wind parks neither release greenhouse gases in to the atmosphere nor toxic substances in to the ground was regarded as a very positive aspect with wind power. Many thought that a wind park would not disturb them, since they are usually built far away from residential areas. Noise was regarded the worst aspect

of wind parks. The wind park in Ingå had been noticed in the local newspaper by some of the students.

In the first group from the Vocational School in Ekenäs, seven of ten students regarded wind power as a positive issue, due to its environmentally friendly way of producing energy at a low price. Despite this, they later added that nuclear power plants make the same amount of energy more efficiently, and that the windmills were experienced as ugly among some students.

The latter group of Ekenäs was less positive about wind parks, where only four of eight people thought positively about them. The rest was divided 50-50 to negative or no clear opinion about the issue. The students' impression was that producing wind energy does not take that much electricity and it does not harm the environment in the park area if they are placed with regard to the surrounding nature and people. The most detrimental environmental effects were birds flying in to propellers and noise.

## **5.2 The fields of interest regarding wind power and the wind park**

After mapping the Karis-Billnäs school students' knowledge of the subject, we started asking about the students' need for information concerning wind power. Only one person was interested in hearing more about the environmental effects of wind power, while the others preferred noise, effects on people and the energy efficiency. Knowing about energy production and transport or the structure and functionality of the wind mills did not awake any interesting thoughts or need for information either. The desire of learning more about the subject was not urgent. When the situation in the future was pointed out, where the young people of today will be looking at the wind parks, the students did not react much. The impression was that they felt totally fine without knowing about what was going on in the neighbouring communities, since it did not affect their daily lives much. They even mentioned that they would never see the wind park in the future.

After describing a situation, where the wind park would be built near the students' own summer cottages on the coast of Ingå, 50 % said that the wind mills would not disturb them. The rest would not support the building, since they wanted to maintain the peace and quiet nature of the place. One student pointed out that in that case, he would like to know more about the effects of wind parks, especially

objective and fact-based information. Some of the students' experiences about wind park information included highlighting of only positive or negative sides of wind power, depending on the information distributor's own view on wind power.

The students of Virkkala Upper Secondary School were negative towards the idea of knowing more about wind power, Ingå project area or sustainable energy as a whole. No specific field or issue was mentioned, that would wake the students' interest or curiosity. A minority of the second group was reluctant to knowing more about wind power at all. The need for information among the students who had a stronger passion for learning concentrated in the Ingå wind park area. The students wanted to know where the wind mills would be placed in the sea, what techniques behind the energy production exist and how the park functions in general. The students also wondered what happens in the wind park when the weather is not windy. They had had some talks with their teachers in school about nuclear power, but sustainable energy in general, solar and wind power were subjects they wanted to know more about. Again, the group wished for facts about both positive and negative sides of energy sources.

Learning about environmental effects of the wind parks were not considered interesting among the first group in Axxell Vocational School in Ekenäs, only about the possible human effects e.g. the landscape and the noise. The group had not heard about the Ingå project area and was certain, that they would not need the information about the functions of the wind park, the technical details, the energy capacity and environmental effects of the wind mills since they would not be affected by the area. When asked if a similar park would be built in Ekenäs, they strongly resisted, mainly due to fears of ruining the landscape.

The desire for information was higher among the second group in Ekenäs. The environmental effects were unclear to some students, and the energy efficiency was also a subject they wanted to know more about. They wanted to achieve a better understanding about the benefits and negative aspects of the wind parks. The young did not feel very curious about the Ingå wind park, though some of them had heard about it for the first time during the discussion. Those who had heard about the project, stated that newspaper headlines had informed them of its existence. Generally, the need for more details was low, despite the fact that a few students said they visit Ingå at times.

## 5.5 The preferred media

The students from Karis spoke openly about information distribution methods and their power. Television and radio programmes were regarded as poor alternatives, and the alternative of dealing with the subject through entertaining shows did not gain support. “Can TV and radio shows even be entertaining about that subject?” was one opinion. Only one person chose newspapers as his favourite information channel although the majority recalled reading headlines about wind parks in the local newspaper. Books, plays, brochures and debates were not regarded as good alternatives for learning, nor did they find plays an interesting information channel. The Internet and theme days or lectures in school were mentioned as better alternatives to get the information through.

An example is at the Virkkala Upper Secondary School, when it was suggested that the information could be received via entertainment shows on TV, radio or in theatres, the acceptance for learning increased. Newspaper articles were also another good source of information, as well as school lectures, since the information would almost definitively reach the students via these two media. The students did not feel that working with wind power, reading brochures, reading about wind power via Facebook would be good ideas. All of the students admitted using Facebook, but were slightly reluctant to learning new things about wind power in their free time. TV shows and films were regarded as positive ways of knowing more about wind power among the second group. School time learning such as informative film days, external lecturers’ presentations and theme days about sustainable energy and wind power, rather than discussions and public events reached the highest acceptance among the students. The Ingå wind park area was not especially pointed out in this context.

After calming down from the shock my suggestion of a wind park in Ekenäs had caused, the students of Axxell in Ekenäs could imagine themselves learning about the wind park. Most of them were keen on hearing about the project via TV and radio programmes, articles in the news and websites. Facebook was again brought in to the conversation and was regarded as a much better alternative for discussions or public information events. Learning in school about wind power was also accepted, but more preferably in the form of workshops, where they could interact, rather than just receive. The second group also agreed that entertaining



TV shows would be a good way to educate the students more about wind power in addition to radio shows and newspapers. Facebook was not looked upon as a good option for informing, instead they were open to participating in theme days at school, where they learn more.

### **5.5 Ideas, wishes and concerns regarding wind power, the wind park**

The students thought it would be better for the sea floor to have the wind mills built in the sea as floating windmills or on an island in the sea, rather than on land. Also Lapland was suggested since “No one lives there”. One even suggested mapping of the seafloor before building, though the effects of the wind park on fish, the sea floor and other sea animals were not regarded detrimental. When asked about the design of the mills, the students did not support any wild design patterns or colours in the mills. “As long as it is neutral or white”, summed up the conversation. Some wild ideas about the propellers of the windmills were also brought up, but in a more humorous way to reduce the number of birds flying in to the turbines.

Ideas regarding nuclear power were also taken into consideration. The interview was made on 11<sup>th</sup> March 2011, only hours before the information that the Japanese coast was stricken by a tsunami had reached Finland. This did not impact the positive attitudes regarding nuclear power among latter discussions made on 16<sup>th</sup> March, though it awoke more discussion on the subject. The students mentioned nuclear power to be more efficient, more energy-producing, but also thought that if the nuclear waste handling could be solved, it would be the best scenario. One alternative suggested by the male students was to send the waste to space.

Sustainable development and renewable energy sources were not subjects the young felt as very urgent, neither did they remember hearing about or discussing about wind power with their relatives and friends. One of the discussions was about ideas concerning young people’s ability of having an impact on their home community’s issues and getting their voices heard. The will to affect the issues in their home community or projects in Karis was also low. My assistant tried to highlight the situation with an example about building a swimming hall in Karis, and asked whether they would be interested in participating in the planning phase

if it was possible. Only small interest awoke and the students stated that they would preferably wait and see what the outcome of the project would be since their possibilities of having an impact on issues in Karis were small. Almost all of the students had the impression that their opportunities of bringing up ideas were minor in comparison to a fifty-year-old man of the community. Some remembered that in some environmental fair their opinions regarding some projects were asked and jotted down, but the students were rather sure that their contribution had not gone further. Another similar experience with the outcome of building an ice hockey hall in Karis, which is what the young had asked for in another survey. After a few humorous comments, one of the boys even said that maybe they should not even be listened to.

The final discussion handled the distribution of information and the alternative of using Facebook as the channel for wind power information was supported. The students were interested in expressing their opinions and ideas through a website that they would anyway use daily. It would be a natural and easy way for them to communicate and learn, since it would not require attending to meetings, moving elsewhere, or bothering to gather information. The risk of getting much unnecessary information was thought about, but generally Facebook was supported as the most used website among the youth. The students were not positive about filling in questionnaires but surprisingly, courses about wind power and other sustainable energy sources awoke some of the students' interest "Maybe since we have to be in school anyway.", as one of them stated. Talking with a real person in the phone and receiving information also raised positive comments.

The Virkkala students in the first groups explained that their possibilities of having an effect on the communities' issues and projects were minor. They said they had experienced that they were left out of decision making and listening to their ideas. A concrete example of this could not be mentioned. As a conclusion to the discussion, I asked how many of the students supported a building of a wind park in the Ingå area. Six of nine students supported, whereas the rest wanted to have more nuclear power built in Finland. Another idea regarding the environmental safety of the windmills was to develop cages around the propellers to prevent the birds from flying into the propellers.

When asked about the wishes regarding wind power, the second group replied by saying that they would like to know how the park functions. The size of the wind park was criticised, the park of 60 windmills being too big. Some kind of design was also suggested to be organised for the windmills or a camouflage colour or something that would stop them from reflecting sunlight. Colours on the windmills were also suggested to be changed according to the season; white mills during winter, and green in summer, which were assumed to bring more jobs for local painters.

The idea of a design competition was supported, or a theme day, where the best windmill design idea would be chosen. The students also wanted to build their own windmill prototype, which would also change the design of propellers and the appearance of the windmills totally. At the end, some of the students wanted the wind parks to be built where no one could see them – Lapland again. They also thought of the long energy transport routes in that case, and the distances for maintenance and building material. All in all, the students summed up the discussion by saying that wind power is a better alternative than nuclear power, since it does not produce any dangerous waste. Increasing sustainable energy was also supported.

Finally, the group was asked about what they felt about their possibilities of getting their voices heard. The response was again negative, no one was said to have taken their opinions and wishes into account. They recalled answering questionnaires and surveys in the school to improve the school issues, but no change had been noticed.

Most of the Ekenäs students regarded the windmill design as fine, but some camouflage could increase their positive image of wind parks. The second group had ideas about the characteristics of the windmills. There were still students that hoped for more efficiency in the energy productivity. The landscape also worried some of the students so that the wind park was not wanted near anyone's home. An idea also rose from discussion of the affecting the community issues; they felt that if something was wrong and needed a fix, they could express themselves the easiest via a Facebook group.

## **6. Conclusions**

In the final section of the thesis, the conclusions of the results from the workshops are presented. This includes the conclusion on the youth's knowledge on wind power and some of the most applicable and appropriate contents, media, and type of information which would meet with the young people's needs and wishes regarding the wind park and informing. The purpose is to develop a solution for information that would increase the young people's acceptance of the wind park as mentioned in the introduction. At the end of the chapter, some possible topics for further investigations are also explained.

### **6.1 Observations from the workshops**

As a conclusion for question about the young people's knowledge concerning wind power, it could be said that the overall picture of wind power among all the students who participated in the work shops was more positive than negative. In every group there was, however, a small minority who did not have a clear opinion about the subject. Many of the students were neither very familiar with the Ingå-Raseborg wind park project, although a minority of them had read newspaper headlines about the project being planned.

Their information was not comprehensive, but concentrated to very small sectors of wind power. Some could name the technical details of the wind turbines while others recalled hearing about islands as the more sustainable location of the windmills. They were able to name some environmental problems such as bird collisions, which was the most popular harm they named in almost every group. The effects of wind power were generally not considered detrimental and one of the schools even highlighted its ecological nature. The fact that wind parks neither releases greenhouse gases in the atmosphere nor toxic substances into the ground were also mentioned as a contributor to their positive opinions.

It can be said that the students accept wind power partially. The issues which affected their negative opinions were mostly noise, landscape issues and windmill design. Around half of all the students regarded the mills ugly, while the other half said that they do not ruin the landscape in the area. Another common subject, brought up by almost all the groups in the discussions, was the comparison between wind and nuclear power.

The continuous societal discussion and prevalence in the Finnish media on nuclear power has inevitably had a significant impact on the students' thinking. Despite the noise and landscape aspects of wind parks, the students said that they could accept wind parks around Finland if they are placed with regard to the surrounding nature and people. Mostly this meant placing them far from residential areas, which indicates that they could benefit from objective and fresh information about the pros and cons of wind parks. This was later confirmed by the students themselves.

Compared to the Dutch young people, the students of the study can be said to have similar environmental attitudes to some extent. This can be seen in their answers concerning the example of building wind parks near their summer cottages, when many students were more concerned about the noise and landscape harms to the people. The human impacts and wishes to move the wind parks far away from residential areas indicate that they are not willing to "make sacrifices for the sake of the environment", alike their Dutch peers. Still, the majority of the students held a positive image on wind power, which shows a similarity with the Dutch youth who felt positive about the environment. The attitudes towards wind power might indicate that they want to support a better energy source alternative for the environment than e.g. coal plants and other non-renewable sources.

## **6.2 The most suitable information**

The needs of information were highly divided among the groups. In many discussions, only one person of each group and a couple of whole groups were interested in hearing more about the environmental effects of wind power. In case the park would be built near the students' summer cottages, some students said that human impacts and energy capacity of the park would be interesting to know.

A concerning observation was that even though many of the students had heard of the wind park for the first time during the work shops, their curiosity of learning more – neither the environmental, nor human effects- was rather low. Although the students had shared the opinion of wind power as a positive issue, based on the park's low effect on their lives, around half of all the students felt totally fine without

knowing about the park. The aspect of the students as future viewers and workers of the wind park did not seem to raise interest either.

There was, however, a group who wanted to learn more about the wind park project; the wind mill locations in the sea, the energy technology behind the production and the general functions of the park. They were also curious of finding answers to questions such as what happens in the park when the weather is not windy.

The aspect of being reluctant to learning more can be explained by their earlier information experiences to some extent. A fraction of the students recalled hearing different things and non-objective information about sustainable energy depending on the information distributor's own views. This is one reason why many groups wished for more objective, open information about both positive and negative aspects of wind power and renewable energy sources. The ones who were interested in the subject and responded positively wished for more information also about sustainable energy in general.

As De Young (1993) stated in his theory, increasing awareness of the environment has great potential of changing people's behaviour towards it. This applies to wind power as well; if young people would know more about what actually happens in the park and what the effects are, they would probably accept it better. Based on my study, starting from the contents of the information, I would first highlight the need of a good overall picture of wind power. An explanation of why the wind parks are needed and built in Finland and why the environment is important to take into consideration could be a good starting point. This may include effects on the human surroundings, such as facts about the extent and intensity of noise, shadows, landscape, vibration and anything that is noticeable by humans would possibly be the primary aspect young people would be interested in. Mentioning the future prospects of the park including job opportunities and the possibility of having cleaner and cheaper energy for young people as future house owners in the area would give the wind project a motivation. Most of the young seem not to have thought of it but the wind park would improve their quality of life in several ways in the future, which is why they could also be told about it in a suitable way.

Environmental effects on the water quality, animals, air, and other surrounding nature as a brief overview would cover environmentally concerned students' needs of information and perhaps even have a positive impact on other students' knowledge. As Cantell and Larna (2006) studied, the curricula could also benefit from having more current issues and news about environmental matters in Finland. There was some interest in the park and its functions, which is why finally, an explanation how the park functions in general, how it produces energy, what happens when there is no wind, how much energy is produced to account for Ingå, etc. could be added.

### **6.3 How to attract attention and draw interest – the appropriate media**

Young people are a demanding audience, and making a subject interesting, that to a great extent is not relevant in their daily lives at the moment, is a challenge. If the information is learned through an appropriate medium, which is interesting and easy to understand, the chances of getting the message through and changing environmental attitudes might be higher than until now. On the basis of the outcome of the discussion, the best way of informing young people would be through a combination of school time activity and the Internet or other more entertaining media. It was clear from the start that the young would not be the most active in learning about wind power if they would have to read long articles, books and brochures. The approach would therefore have to be very simple and up-to-date; otherwise the interest would not be very high among the receivers.

The Internet was regarded as a preferable source, even though Facebook shared opinions slightly. Among some of the groups, Facebook was not preferred, probably since they predicted that they would not learn during their free time. This might explain why school was preferred to Facebook as well. The education aspects correlated rather well with De Young's (1993) theory of information techniques as presented in the theory chapter. Using newspaper articles in the information distribution would be suitable because it reaches the young well, but as said, the young would not necessarily read about wind power during their free time. They were, nevertheless, seen upon as better alternatives for public discussions, other communal events, brochures and books.

The most interesting media for learning about wind power were both educating and entertaining plays, films, TV and radio programmes. Involving their use in school time learning would be a good combination, since the students named school as the most preferable form of learning. Whether it is due to the mandatory attendance at school or the more inspiring way of information getting through, it is one of the best alternatives to increase the knowledge about wind power. As investigated by Cantell and Larna (2006), learning activities in school could take several forms; external lecturers and company representatives telling about sustainable energy forms, theme days about getting to know the wind park better, and working with wind mills, their design or energy producing techniques, etc. As one student asked, acting instead of only receiving information would be the key. Cooperation with local newspapers or excursions to the wind park area would be a different and interesting way of learning for them.

#### **6.4 Ideas presented by the young**

The ideas of building the parks far from residential areas due to the negative effects on the landscape, in the wildest case to Lapland, reveal their attitudes, which do not support wind power totally yet. Despite this, the fact that the students had lots of ideas about the wind park in Ingå-Raseborg - sea floor mapping, floating windmills, cages around the propellers - indicates that they were still keen on participating in wind power. The design of the windmills was also criticised, some experienced them as ugly and sun-reflecting, while others felt the white colour suitable enough, as long as they were neutral. Enhanced colouring and possible patterns of the windmills were said to increase the positive image of the wind parks.

The most creative students started immediately planning new camouflage for the windmills, which could change according to the season and provide work for the locals. The same ones also dreamed about building their own prototype and new kinds of propellers to the windmills. In other groups, the new propellers were suggested to prevent bird collisions by installing e.g. cages, new kinds of turbines and propellers etc. In this context, the theme day or design competition, where the best outcome would be developed for the actual park was largely supported by the students.



The most applicable idea concerning the appropriate information channel was involving Facebook in the information distribution. It was largely supported by a clear majority of the students, because the students regarded it as a very natural and easy way of communication and learning. They use Facebook daily and it would not require much effort from them, such as moving from A to B, information gathering, attending meetings, in order to get informed. They wished that they could also express themselves in a platform of opinions and wishes. This was important for the young, since they felt that their possibilities of affecting the issues of the community were low. Developing a Facebook page creating awareness of the wind park and wind power would be most applicable, if it would include a site where wind power discussions take place and an educating site with diversified information (according to different needs for information) and a platform, where the young people could express their thoughts. According to a study by M. Kaitaniemi (2009), involving specifically the students in decision making or other stakeholder involvement in environmental projects could make them feel more empowered as well.

## **6.5 Suggestions for improvement and further studies**

### **6.5.1 Possible improvements**

The investigation was accomplished well and reached the target in finding out how the information to young people could be enhanced. The workshop can be said to have succeeded in providing the students a stakeholder involvement experience, since they learned more about it during their own questions of the wind park. Observing differences between and within the groups' opinions about the aspects of wind power and the need for information threw a challenge on developing a better information system for the young people, which would meet as many expectations as possible. The students' own ideas assisted the work, since they knew themselves and their needs best. For later studies such as mine in other wind park areas, remembering some aspects would make the investigation succeed even better with the young.

Discussion as a method of gathering information and a learning experience was very participatory and beneficial, although the direction of the discussion drifted to other businesses a couple of times. The leader needs to have sufficient authority

so that the young will take the workshop seriously. On the other hand, a certain degree of being relaxed helps the thinking of your own motives behind answers and moderates the sometimes very intimidating situation. If they were nervous, it might be hard to think where the opinions derive from.

The implication of group pressure may have had some impact on what the young contributed to the discussion. The students did not seem overly shy or uncertain about the new situation, but they were certainly a bit careful in what to say in front of their classmates. This might have affected them in a way that made them act like they were expected to; bringing forth rather careless comments and answers which they did not have to think themselves. The leading of the group's opinion by the leader or alternatively a couple of the most talkative and participative people might have also affected the results slightly. An opportunity of showing off in front of their classmates might have also impacted in their views to some extent. The young may have reflected their parent's opinions or joined their peers' viewpoints, without having to think about their own. In further studies, more accurate and structured questions could find out the reasons behind the answers better. Smaller focus group sizes, from 5 to 6 could also let the other students have their say.

### **6.5.2 Topics for further studies**

The actual continuation of the study of the thesis could investigate the following cases:

1. The acceptance of wind power among the studied group after an organised and targeted environmental education period during their school years.
2. A comparison of acceptance of wind power between the same group after having been environmentally educated and another group which has received only traditional environmental education according to school curricula.

The aim of the first study would be to see whether the students' environmental attitudes have changed and acceptance of the wind power plant had increased. The study is relatively easy to conduct as the student group does not change during school. The methods would be the same including focus groups, qualitative research and half-structured interview. The information system should be finished well before their graduation so that the education could still be given and results from possible changes in their attitudes be obtained. The study also provides an

opportunity to determine whether the information method has been effective in raising acceptance of wind power among the target group.

The second study would follow the same principles as the first one, but involves a comparison with classes from the same schools that have not had any increased environmental education. Taking age into consideration is important in this study since the comparison to opinions which have had not changed would make no sense. The investigation of attitudes among the other, uneducated group should take place first in the same age as the first group who later received education and secondly, before graduation after the educated group has had an opportunity to change their attitudes. This would provide even more information about the education system and the effect of age without the element of education as a determining factor for opinions.

## 7. References

Kaitaniemi, M.(2009). *Osallistuvia ympäristökansalaisia kasvattamassa. Tapaus Aurinko ja Tuuli*. Unpublished thesis for a Master's Degree in faculty of biosciences. University of Helsinki, Faculty of Biological and Environmental Sciences, Helsinki

Kuhlemeier, H.; Bergh, H.; Lagerweij, N. (1999) Environmental knowledge, attitudes, and behaviour in Dutch secondary education. *Journal of Environmental Education; Winter 99, vol 30 Issue 2*, p. 4,10

De Young, R. (1993). *Changing Behavior and Making it Stick: The Conceptualization and Management of Conservation Behavior*

Cantell, H; Larna, R (2006) *Ympäristövastuullisuus sanoissa ja teoissa (2006)*

The Finnish Wind Power Association (w.y.) *Wind power in Finland*

[http://www.tuulivoimatieto.fi/tuulivoima\\_suomi](http://www.tuulivoimatieto.fi/tuulivoima_suomi) (retrieved 1.4.2011)

Suomen Merituuli Oy (2010) *Information about wind power*

<http://www.suomenmerituuli.fi> (retrieved 10.3.2011)

Focus groups (w.y.)

<http://www.bolton.ac.uk/Students/StudyResources/Library/HelpGuides/CribSheets/Focusgroups.pdf> (retrieved 11.3.2011)

Semi-structured interviews (w.y.)

<http://www.fao.org/docrep/x5307e/x5307e08.htm>

Qualitative research methods (2000)

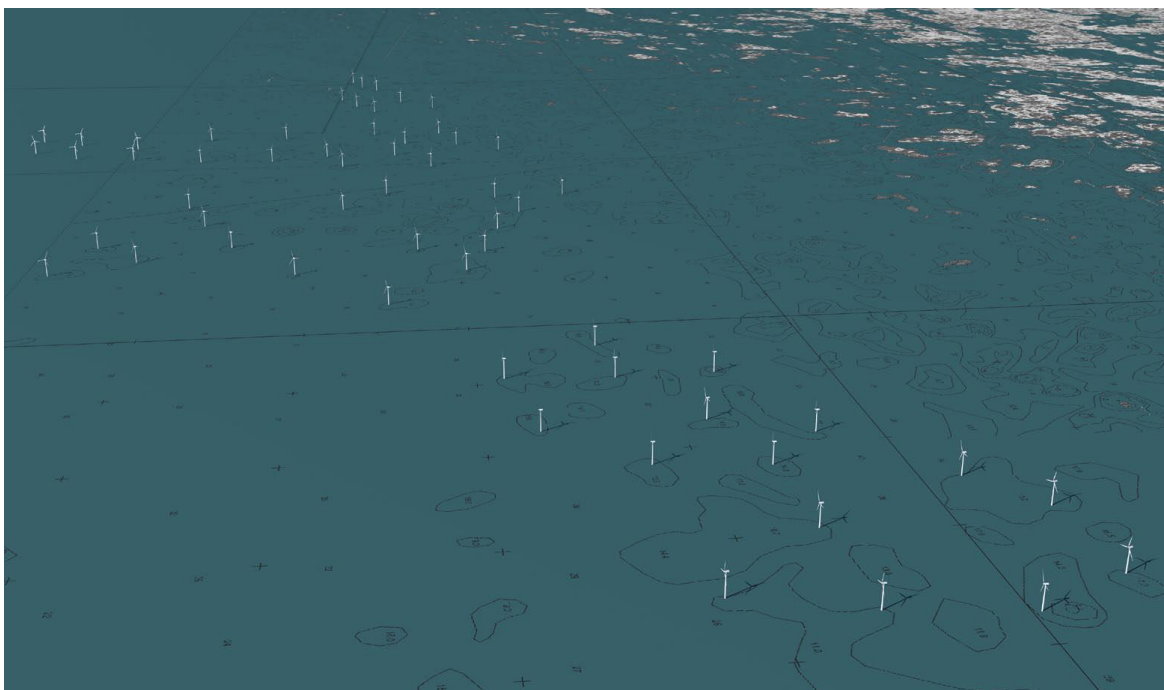
<http://www.socialresearchmethods.net/tutorial/Mensah/default.htm>

Suomen kansallinen toimintasuunnitelma uusiutuvista lähteistä peräisin olevan energian edistämisestä direktiivin 2009/28/EY mukaisesti; The ministry of Employment and the Economy (w.y.); p. 29-31

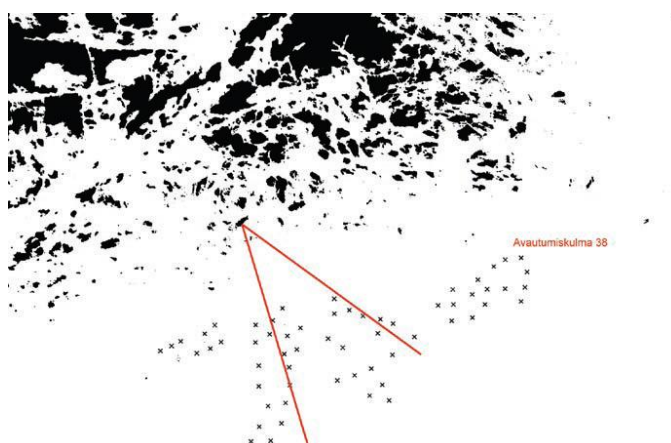
[http://www.tem.fi/files/29773/Suomen\\_kansallinen\\_toimintasuunnitelma.pdf](http://www.tem.fi/files/29773/Suomen_kansallinen_toimintasuunnitelma.pdf) (retrieved 9.5.2011)

## Appendix

### Appendix 1. Pictures of the project area



**Picture 1.1** The windmill locations as four groups according to alternative VE3 along the Ingå-Raseborg coast. Developed by design company Molino Oy. Permission of use by Suomen Merituuli Oy. Picture resource: <http://suomenmerituuli.fi>



**Picture 1.2** The guiding demonstration of the viewpoint to the sea in picture C. Developed by design company Molino Oy. Permission of use by Suomen Merituuli Oy. Picture resource: <http://suomenmerituuli.fi>



**Picture 1.3** A view to the sea from the centre of the project area including the windmills according to option VE3. Developed by design company Molino Oy. Permission of use by Suomen Merituuli Oy. Picture resource: <http://suomenmerituuli.fi>

## Appendix 2. The work shop questions

Name of the school:

Date:

Number of students:

Number of Ingå-originated people:

### 1. What do you know about wind power?

**Sub questions:** Is it a positive or negative matter? Do you think it should be increased or reduced? What is your view on the establishing of wind power

Wind power is a positive matter	
Wind power is a negative matter	
No clear opinion	

stations in Ingå-Raseborg? Does it have any environmental or human impacts?

### 2. What would you like to know more regarding wind power or the Ingå-Raseborg wind park?

Environmental effects on animals, water quality, soil, etc.	
Human impacts e.g. possible harms to lanscape, noise and shadows, local livelihood	
The economical aspects and benefits	
Technical details of the windmill parks, windmill structure, functionality, energy efficiency, production	
Describing the Ingå-Raseborg wind park, the area and how the windmills will be situated, etc.	
Long, detailed explanations or pictures and charts	

**Sub questions:** If a wind park was to be established near your home, what would you like to know about the project? Are you interested in wind power in general? Do you ever visit the coast of Ingå-Raseborg?

**3. Via what media would you like to receive information about wind power?**

TV and radio programs	
Entertaining TV and radioprograms	
Newspapers and surveys	
Books and brochures	
Theatre plays	
Public events, discussion events	
Workshops, activities in school	
Internet websites, e.g. Facebook and Twitter	
School lectures	
Information from friends and family	

**4. Do you have other ideas or wishes concerning the Ingå-Raseborg wind park, or how they could inform and take the locals better into account?**

**Sub questions:** Do you feel you can affect your community issues? Are people of your age taken into account in projects? How do you like the current design of the windmills? How could the wind parks in Finland be improved?