



TECHNICAL UNIVERSITY OF DENMARK

MANAGING LOCAL ACCEPTANCE OF TECHNOLOGY CHANGE WITHIN WIND
POWER PROJECTS

MASTER'S THESIS

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TITLE:

Managing local acceptance of technology change within wind power projects.

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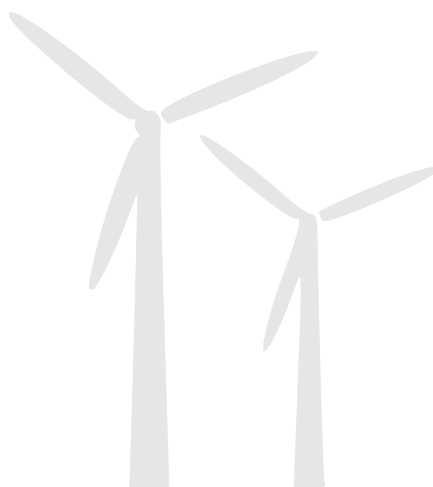
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Abstract

Ambitious governmental targets are set to increase the share of Renewable Energy (RE) in Denmark. It is, however, increasingly recognised that the expansion of wind projects are met with local resistance. Securing the acceptance of local communities continues to receive insufficient attention and is considered an important prerequisite towards increasing prevalence of RE. The statutory Environmental Impact Assessment (EIA) is considered an essential framework for creating dialogue and alignment between project developer, authority, consultancy and the public regarding factors influencing community acceptance. Research, however, perceives the assessment to be insufficient in addressing local acceptance. Community groups and individual members of the public are often neglected and believe that they are peripheral to EIA related decision-making. Through the case study Little Belt South, this thesis investigates the socio-technical paradox of wind projects and the related local controversies of community acceptance. The study investigates the engineering consultancy, COWI's, approach towards managing the controversial aspect throughout the EIA process and seeks to provide recommendations in order for it to improve community acceptance in future RE projects. The study's main findings highlight the advantages of early community participation prior to the planning process. Increased focus on two-way communication and alignment of stakeholder expectations are considered a necessity towards accommodating local requirements. The thesis suggests bridging the gap between affected host communities and project developers by increasing focus on understanding the underlying aspects of community acceptance. Using anthropologists as a strategic capability in managing issues of community identity, trust and community participation may improve the level of local acceptance of future RE projects.

Keywords: *Environmental impact assessment, Wind energy, Local acceptance, Coastal wind farm, Little Belt South, and Strategic capabilities.*

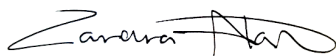
Preface

This master thesis has been conducted by Anika Zandra Alcoat and studies the aspect of *applying environmental impact assessments as a strategic tool in the community's acceptance of technological change within wind power projects*. The master thesis has been completed in spring 2018 and corresponded to 35 ECTS. The project started the 22nd of January and proceeded for six month until the 22nd of July 2018 under the supervision of Kristian Borch from the department of management engineering at DTU. The master thesis was finally defended the 15th of August 2018. The thesis was developed as the final part of a two year Master's degree program within Industrial Engineering and Management at DTU.

A special thanks to my supervisor Kristian Borch, who has been a great help and support throughout the development of this master thesis. Additionally, I would like to thank the respondents from COWI for sharing their valuable experiences on the area of investigation. Lastly, I would like to thank my boyfriend and my dear family for their trust and support.

Kongens Lyngby, July 2018

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List of Abbreviations

AC	Appropriate Collaboration is an approach to decision-making, conflict resolution and public participation (Daniel and Cheng, 2005).
CWF	Coastal Wind Farm.
DAD	Decide, Announce, Defend is a top-down, minimally participatory method of public involvement (Wolsink, 2005).
DEA	Danish Energy Agency.
EIA	Environmental Impact Assessment is a systematic process of evaluating the likely environmental impacts of a proposed project (COWI, 2016).
LBS	Little Belt South is the name of a potential Danish CWF located in Southern Little Belt.
NIMBY	Not In My Back Yard is an attitude of objection of local project in the proximity “backyard” (Wolsink, 2012).
RBV	Resource-Based View is a strategic framework applied to determine strategic capabilities with the potential to deliver competitive advantages (Johnson et al., 2015).
RE	Renewable Energy.
SF	Sønderborg Forsyning.
STS	Socio-Technical System recognises the interaction of social aspects of people and society and technical aspects of organisational structure and processes.
TR	Technical-Regulation approach is an approach to decision-making, conflict resolution and public participation (Daniel and Cheng, 2005).

Chapter 1

Introduction

Climate policies present the transformation to sustainable energy provision and particularly the application of RE sources as key drivers to CO₂ reduction. In order to oblige with the Danish climate objective of becoming independent of fossil fuels by 2050, Denmark needs to secure optimal and sustainable solutions towards the implementation of RE technology. This course of action requires the support and engagement of governmental institutions, municipalities and importantly, communities (Ellis and Ferraro, 2016; Wolsink, 2005). The development of RE has, however, proven to be an uphill battle.

The beneficial wind conditions in Denmark make wind energy one of the most obvious RE sources and has become a significant contribution towards the Danish transition (Vindmølleindustrien, 2018). However, the technology holds various challenges in the form of host community concerns towards local wind energy projects resulting in several projects being ceased across the Danish landscape (Sommer, Bjørnstad, and Frandsen, 2017). The social dimension has become a factor of equal importance to technology in wind farm implementation where energy systems cannot be viewed simply as a technology but as being deeply embedded within a society i.e. as part of a Socio-Technical System (STS) (Ellis and Ferraro, 2016; Fournis and Fortin, 2017). This has made social acceptance a powerful barrier which may prevent the achievement of RE targets (Wüstenhaen, Wolsink, and Burer, 2007). This thesis focuses on the social aspects of wind project developments.

In general wind power is accompanied by a high level of *public* support but specific projects appear to be facing increasing levels of *local* opposition due to the '*Not In My BackYard*' (NIMBY) attitude (Ellis and Ferraro, 2016; Wolsink, 2005). With public support is meant

the general society (e.g. Denmark) while local and community support refers to the host communities in which the projects are executed (e.g. Sønderborg). Local acceptance is felt to be a major constraint in the development of wind power facilities and in less than two decades, this topic has evolved from "*... a marginal and little studied point of discussion to be at the forefront of broader debates in the social sciences*" (Fournis and Fortin, 2017). Various scholars outline the importance of understanding the 'gap' between the general socio-political support towards RE and the local community support towards specific RE projects (Ellis and Ferraro, 2016; Wolsink, 2012).

With the expansion of wind energy in Denmark comes the mandatory EIA which is an important and well-established tool for managing and reducing environmental consequences of larger construction projects. The purpose of the EIA is to assess the expected level of deterioration of the environment. The difficulty lies in defining the environment which includes scientific perspectives such as physical, chemical and biological aspects but also anthropological ones such as cultural and societal (David and Lawrence, 2003; Miljøstyrelsen, 2017a). Since not everyone perceives the environment in the same light or values it in the same way, public participation is considered a necessity in environmental decision-making (Caldwell, 1999; O'Faircheallaigh, 2009). Various scholars argue that EIA practitioners devote little attention to this issue and that optimal facilitation of wind farms includes earlier public involvement and greater use of continuous and collaborative involvement procedures between local communities and project developer (David and Lawrence, 2003; Fournis and Fortin, 2017; Warren et al., 2012). EIAs thus need to encompass technical as well as social aspects, involving the public in the assessment. Benefits of public participation are, however, often taken for granted and too often environmental decision-making processes fall short of providing citizens with a meaningful voice (O'Faircheallaigh, 2009; Walker, Daniels, and Emborg, 2015).

Wind projects broadly encompass stakeholders such as project developer, authorities, consultancies and local communities. The environmental assessment is often outsourced to engineering consultancies who have the resources and the competencies to conduct in-depth investigations. In Denmark these include among others, the Danish engineering consultancy COWI.

This thesis investigates the aspect of local acceptance based on a conflictual Coastal Wind Farm (CWF) project located in the Little Belt. The case study reveals opposing viewpoints from the two host communities comprising Sønderborg and Assens. Analysing the case study provides a richer understanding of supporting and opposing factors influencing the level of community acceptance. The environmental assessment is conducted by COWI leaving the responsibility of managing technical as well as social issues to the consultancy. By analysing COWI's capabilities in managing *environmental* issues, the thesis seeks to provide recommendations for improving the level of community acceptance in future wind projects providing the company with a competitive advantage.

1.1 Research question

Even though the aspect of local acceptance has received great attention from various scholars the aspect continues to receive insufficient attention in environmental assessments. Engineering consultancies tend to prioritise the technical dimension and neglect the social dimension even though both dimensions have become factors of equal importance. Understanding and acknowledging CWF projects as a STS is therefore considered indispensable.

Wolsink (2005) argues that project developers and planners tend to apply the Decide-Announce-Defend (DAD) strategy and top-down approaches minimising the opportunity for community participation and inclusion resulting in needless opposition. By disregarding the legitimate concerns of the local communities the resistance towards future wind projects will grow. Clearly, not everyone will accept the expansion of wind power. However, by accommodating the increasing uncertainty arising in local communities and accepting diversity among these, the possibility of achieving the ambitious climate goal is increased (Borch, 2015).

Identifying and aligning technical procedural regimes such as the EIA with aspects of relevance to community acceptance might be a complex and challenging task. This can, however, act as an opportunity for engineering consultancies to set themselves apart from competitors by reducing community opposition towards future RE projects.

In summary this thesis seeks to describe how EIAs can be applied as a strategic tool to improve community acceptance of technological change within wind power projects. For this purpose the following research questions have been developed in order to address the overall objective:

- Research question 1: *Who are the main stakeholders in CWF projects and how influential are they in the deployment of wind projects?*
- Research question 2: *How should factors of local acceptance be managed through the EIA process?*
- Research question 3: *What strategic direction can be recommended in order for COWI to improve the acceptance of local communities in future RE projects?*

1.2 Learning objectives

The developed learning objectives for this thesis are constructed to reflect Bloom's taxonomic learning concepts. The formulated learning objectives are listed below:

1. Identify the problem and describe the concept of social acceptance
2. Collect relevant literature and data within the field of social acceptance and wind power projects
3. Apply relevant theories/methods/frameworks in relation to the research questions
4. Analyse the collected data and identify key issues related to the research questions
5. Construct recommendations for improving the level of local acceptance in wind projects based on the environmental impact assessment
6. Evaluate the developed recommendations and discuss limitations and possibilities

Chapter 2

Methodology

In the following section the research strategy will be outlined along with the choices made regarding qualitative as well as quantitative investigations. The structure of the thesis will furthermore be described.

2.1 Research strategy

For the purpose of this thesis a single-case study of a Danish CWF project has been applied to address the developed research questions. This inductive research strategy seeks to uncover patterns and trends in the thoughts and opinions of the local communities. The investigated CWF project represents an almost unique case study due to the divergent and conflictual attitudes embedded in the host communities. Additionally, social acceptance as part of EIA is a well-documented and investigated area based on several research projects such as the VVM_{plus} project.

The VVM_{plus} project analysed and developed recommendations towards managing and integrating social consequences into EIAs of RE projects (Larsen and Nielsen, 2016). The research project illustrates that the handling of social consequences within the EIA process is underexposed and that citizens experience lack of transparency and responsiveness regarding their opportunities towards participation, access to information and their level of influence in decision-making. The VVM_{plus} clarifies that the aspect of defining social consequences and ways to mitigate those are often left to consultancies due to their experience compared to most project developers. The research project was concluded with the development of 11 recommendations for integrating social consequences into EIAs. The recommendations from the VVM_{plus} project have been used as a starting point for this

thesis. An overview of the recommendations is shown in Appendix A.3.

The uniqueness of the case study and the well-established field of study serve as the main reasons for conducting a single-case study compared to multiple-case studies (Yin, 1994). Additionally, the single-case study allows for comprehensive investigations and may act as prelude for further study in the field.

Using case studies as a research strategy enables the gathering of in-depth investigations and first-hand experiences on a real-life phenomenon by applying qualitative and quantitative research. The study also provides a multi-perspectival analysis of attitudes from various groups of actors and the interrelationships between them (Tellis, 1997). As a unique strength the case study is able to deal with a variety of evidence and applies multiple sources of data including documents, interviews and participant observation, establishing reliability of the study under investigation (Vallis and Tierney, 2000). In order to gain an in-depth understanding of the contemporary case study, data has been collected through a survey and through semi-structured interviews.

The first research question *describes* the study's main stakeholders and their expected influence regarding the construction of the CWF project. The second research question *explains* factors of local acceptance. Both research questions utilise qualitative as well as quantitative data sources. Quantitative data is gathered through a survey aiming at *describing* attitudes and behaviours of the local community. Qualitative data is gathered through semi-structured interviews with people in the industry. This approach increases the researcher's understanding through insights from the local communities and from experts. The third research question seeks to *explore* potential alternatives for a future strategic direction. By applying the acquired knowledge gained through this thesis, recommendations are developed aiming at creating a competitive advantage for COWI.

2.1.1 Case study criteria

The chosen case-study represents a contemporary CWF project called Little Belt South (LBS). The justification for choosing the LBS project is due to the differences in community acceptance causing controversies among the two affected communities comprising Assens and Sønderborg. Even though the CWF project is still undergoing preliminary

investigations it has been feasible to obtain relevant data through interviews, survey and media-coverage.

2.2 Data gathering

Data gathering comprises: 1) An online survey involving the two affected communities and 2) Semi-structured interviews with the engineering consultancy COWI and the project developer Sønderborg Forsyning (SF). Additional information has been gathered through online media coverage (TV, Facebook pages, online resistance movements), documents, presentations and articles to compare the responses.

The survey format has been chosen due to its flexibility and its dependability, securing anonymity allowing respondents to answer with more candid answers. Additionally, it facilitates a structured way of gathering characteristics of a population.

The interview format has been chosen to increase the level of detailed questioning and to obtain information about the interviewees' personal feelings, perceptions and opinions. The planned questions may also be adapted based on interviewee responses.

2.2.1 Defining research indicators

In order to best utilise the gathered data, pre-defined indicators reoccurring in the questions have been applied similar to the methodology used by Loring (2007) and Roosen and Kalkbrenner (2015). The indicators serve to standardise the data analysis, enabling systematic interpretation and consistent grounds for drawing conclusions. Three indicators have been chosen for this thesis comprising: community participation, community acceptance and network stability.

- *Community participation* looks at the inclusion of affected individuals. This indicator serves to assess:
 - how the local communities are involved in decision-making processes
 - if the local communities were involved in the project initiation
 - whether or not the communities have financial ownership of the project

- if special efforts were made in order to encourage local communities to participate
- *Community acceptance*, seeks to understand supportive or opposing attitudes from local communities. The indicator serves to assess:
 - the local attitudes towards the development
- *Network stability*, investigates the relationship between project stakeholders (project developer, communities, consultant). The indicator serves to assess:
 - whether mutual trust between stakeholders has emerged
 - how well expectations are aligned

For completeness the VVM_{plus} recommendations and the interview questions have been classified according to the indicators above. All survey questions have finally been classified according to both the indicators and the VVM_{plus} recommendations, see Appendix A.2.2.

2.2.2 Survey questions

The recommendations developed by the VVM_{plus} project have served as a starting point for the development of the survey. The survey thus serves to: 1) Identify which of the VVM_{plus} recommendations are the most relevant for the host communities presented in the case study and; 2) Analyse to what extent the recommendations are currently being managed, seeking opportunities for improvement. The survey consists of structured as well as unstructured response formats. The structured format consist of pre-designed categories from which the respondents must choose from. Grouping the responses into pre-determined choices helps the respondents respond more easily and allow a more aggregated categorisation simplifying the subsequent process of identifying trends in the data. The structured responses consist of five possible answers: *agree*, *partly agree*, *don't know*, *partly disagree* and *disagree*. The unstructured responses consist of open-ended *exploratory* questions. The unstructured questions allow the respondents to provide any feedback they please, providing the opportunity to gain insights on topics which haven't previously been thought of. The online survey was made public on the developer's own Facebook page *Havmølleparken Lillebælt Syd* and on the project developer's homepage *Lillebæltsyd.dk*. The survey questions along with the design can be seen in Appendix A.2.1 while the survey results are found in Appendix A.2.2.

2.2.3 Interview guide

Semi-structured interviews with different actors in the industry have been conducted. Choosing participants based on their knowledge and experience provides credibility and a comprehensive understanding of the phenomenon under investigation. The following interviewees have contributed to the qualitative data gathering throughout this thesis, see Table 2.1. For additional information about the interviewees, see Appendix A.1.1.




Interviewee	Organization	Title	Description	Date
Anne Eiby (AE) 	COWI	Project manager (water & nature)	Semi-structured interview (face-to-face)	18.04.2018
Lone Jensen (LJ) 	COWI	Engineer (water & nature)	Semi-structured interview (by telephone)	25.05.2018
Iben Nielsen (IN) 	Sønderborg Forsyning	Senior project manager	Semi-structured interview (by telephone)	02.07.2018
Ulf Kjellerup (UK)	COWI	Senior legal advisor (water & nature)	Semi-structured interview (face-to-face)	19.04.2018
Birgit Lindsnæs (BL)	COWI	Social anthropologist (economics & management)	Semi-structured interview (face-to-face)	24.05.2018
Henrik Lysgaard (HL)	COWI	Chief project manager (transport planning)	Semi-structured interview (by telephone)	30.05.2018
Mette Dalsgaard (MD)	COWI	Head of section (economics & management)	Semi-structured interview (by telephone)	30.05.2018

Table 2.1: Overview of interviewees.

Different interview guides have been developed to gain expert knowledge within the fields of: 1) Understanding the case study from the project developer's and the engineering consultancy's perspectives; 2) Understanding Danish EIA regulations and; 3) Developing recommendations for a future strategic direction. (AE), (LJ) and (IN) have provided insights w.r.t. 1), (UK) has provided insight w.r.t. 2) while (BL), (LJ), (HL) and (MD) have provided insight w.r.t. 3). The full interview guides are shown in Appendix A.1.2.

Below examples are outlined indicating responses towards the three indicators: community participation, community acceptance and network stability:

Interview Question: "How are the local communities involved in the EIA process?"

"The communities are primarily involved through the public meetings which are mandatory. However, there are several other options which I think, especially SF has chosen to use. These include the website and the Facebook page, which allows them to tell stories on

a regular basis so that citizens can follow what is really going on."

— AE (interview, translation)

Below an example to illustrate community acceptance:

Interview Question: "How was the atmosphere during the first public meeting?"

"At the public meeting in Assens there was a very young girl who got up and almost cried saying that it was terrible that our nature was being destroyed - and they all applauded, but that is not the case. We do not destroy the nature, the turbines do not pollute and on the contrary, it can be said that what destroys our nature is if we continue with the energy we have."

— AE (interview, translation)

A strong opposition towards the CWF project was expressed from the community of Assens, see examples below:

"The project should stop since wind farms belong on the sea and not in the inland waters."

— Assens citizen (survey, translation)

"They have pushed the wind farm so far up their own back yard that it hits our front yard. It does not get any better that we own a percentage of the project - and our coast will not become more beautiful if the project becomes a realisation."

— Mayor of Assens (article, translation)

Below an example illustrating network stability:

Survey Question: "I perceive the communication between Sønderborg Forsyning, COWI and the local communities to be constructive"

Based on the gathered data it is assumed that a strong mistrust has emerged between the communities and SF and COWI complicating the communication process between them:

"Who manipulates?! At the night image from Helnæs, the lighthouse is fully lit to draw attention from the light coming from the turbines. Helnæs lighthouse is not lit up. By the way, COWI is being paid by Little Belt South, so they are actually not being objective."

— Assens citizen (Facebook page, translation)

"...the skepticism and suspicion is hard to overcome once it has arisen. You can almost say anything, and they won't believe in one because you are just one of the 'project makers'."

— AE (interview, translation)

2.3 Research application

This thesis investigates the aspect of local acceptance in wind power projects and assesses factors which may cause resistance or opposition. The EIA introduces key stakeholders such as: project developer, authorities, consultancies and communities and requires interplay among them. The key stakeholders are positioned according to their level of interest and level of power determining the optimal communication and involvement strategies in order to maintain supporters and reduce blockers (Vogwell, 2003). The aspect of social acceptance is introduced by Wolsink (2012). The theory introduces the two highly debated and conflictual issues of place-based and trust-based explanations which have proven to be insightful in understanding factors of community acceptance. These are studied in order to provide a richer picture of the communities of investigation. The aspect of community participation and power in decision-making processes have been investigated through the Public Participation Spectrum (PPS) developed by the International Association of Public Participation (IAP2) (iap2, 2016). Supported by the two approaches to environmental decision-making, the Technical-Regulatory (TR) and the Appropriate Collaboration (AC) approach introduced by Walker, Daniels, and Emborg (2015). These theories have proven useful in analysing the involvement of opposing communities prior to and throughout the EIA. In order to develop sustainable recommendations securing COWI a competitive advantage the Resource-Based View (RBV) of strategy has been applied to analyse the company's resources and competences based on the VRIO framework.

Chapter 3

Theoretical Framework

The theoretical chapter describes the fundamental aspects applied throughout this thesis and include theories, models and frameworks providing an in-depth understanding of essential perspectives. The descriptive and normative approaches are applied throughout this chapter in order to elucidate the perspectives outlined in the research questions.

3.1 Environmental impact assessment

"Environmental impact assessment is a process of evaluating the likely environmental impacts of a proposed project or development, taking into account inter-related socio-economic, cultural and human-health impacts, both beneficial and adverse."

— The Convention on Biological Diversity (2013)

This section describes the purpose and content of an EIA. Furthermore, the section identifies where public involvement at present occurs and to what extent. The EIA described throughout this thesis is based on the Danish standards for its development within large scale offshore wind projects and coastal wind projects (Energi-Forsynings-og Klimaministeriet, 2012).

An EIA is a systematic evaluation of the environmental effects likely to arise from the construction of a major project. Besides outlining the potential environmental consequences, the EIA investigates the current environmental state, alternatives to the proposed project and precautionary measures that can prevent or mitigate harmful impacts on the environment. The EIA considers possible impacts prior to a decision being taken so as to assist governmental institutions in the approval process. Therefore, the assessment secures a

thorough analysis of various environmental impacts and contributes to making environmentally sound decisions (David and Lawrence, 2003).

The definition of the *environment* has broadened from an early emphasis on physical and biological effects to an increased focus towards social, cultural, human health and ecological effects (ibid.). According to Miljøstyrelsen (2017a) the Danish EIA must describe: *people, fauna, flora, soil, water, air, climate, landscape, material goods and cultural heritage* as well as the *interplay* among these factors. As part of the EIA process the general public must be included in the process giving affected communities the opportunity to provide suggestions or highlight objections with regard to the terms by which the project is to be realised under.

An EIA is not limited to assessing how the project is going to affect the surroundings the day of its inauguration but also assess the potential influences during construction, operation and the long-term effects on the environment (Miljø- og Fødevareministeriet, 2017; Miljøstyrelsen, 2017b). The EIA is a mandatory part to gain establishment approval.

3.1.1 EIA for wind farm installations

Several types of facilities are required by Danish law to conduct an EIA before project start. These include, among others, facilities for: energy production, extraction of raw materials and large infrastructure projects (Miljø- og Fødevareministeriet, 2017). In Denmark CWFs are classified as parks with a capacity up to 200 MW and a location between 4 km to 20 km from shore. Large scale wind farms must have at least a 400 MW capacity and are located at least 15 km from shore (Vindmølleindustrien, 2017b). Both types of wind farms adhere to the same EIA regulations.

In the following the generic EIA procedure for wind projects will be outlined and described. The EIA procedure is illustrated on Figure 3.1.

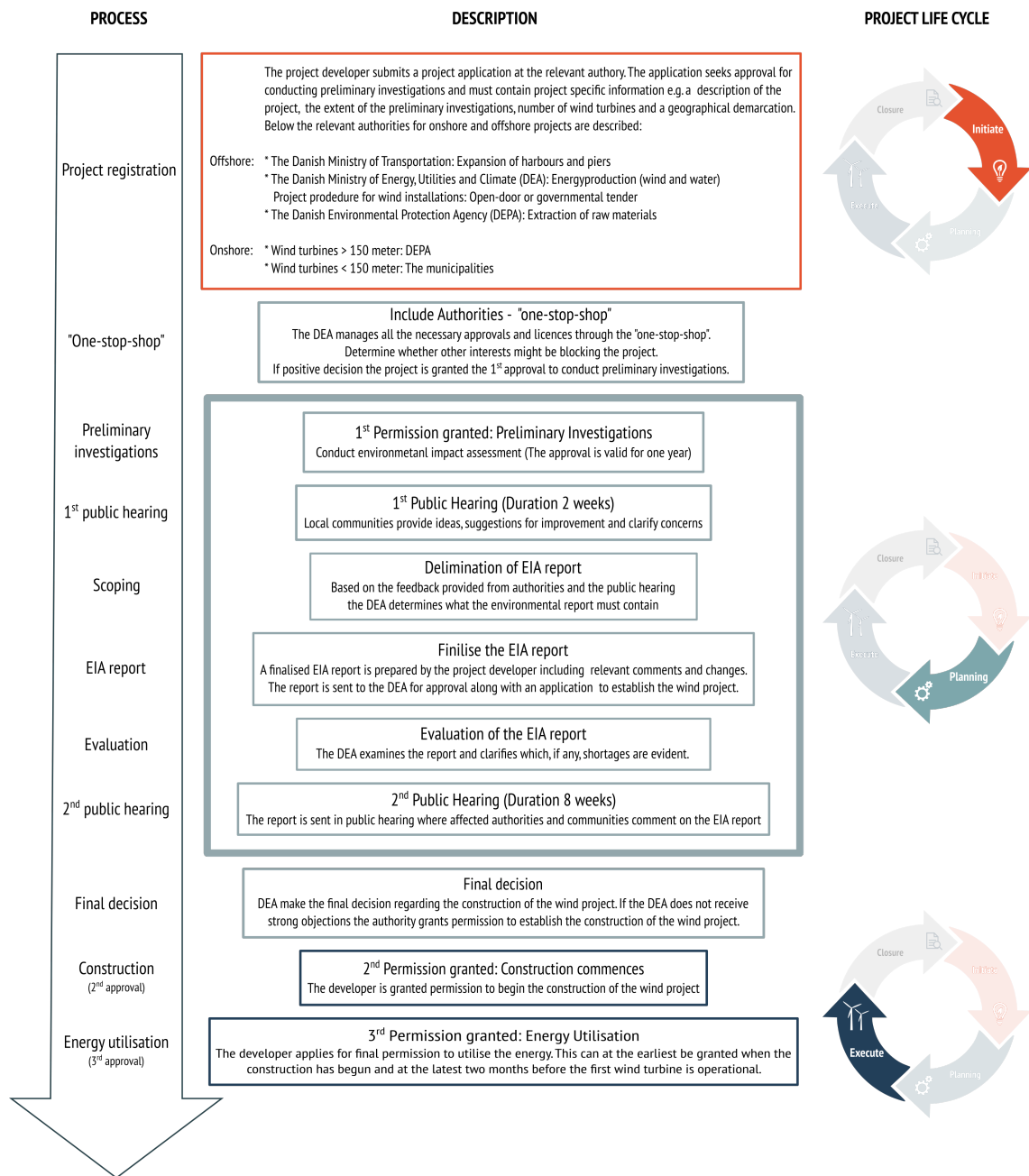


Figure 3.1: The environmental impact assessment for wind projects.

Step 1 - Project registration

The project developer submits a project application at the relevant municipality or authority based on the type of project i.e. onshore or offshore. The application seeks approval for conducting preliminary investigations and must contain project specific information e.g. a

description of the project, the expected extent of the preliminary investigations, the total number of turbines, their expected height and a geographical demarcation.

For onshore wind farms the appointed authority is either the concerned municipality or the Danish Environmental Protection Agency (DEPA). Municipalities hold authority when wind turbines are up to 150 meter and DEPA holds authority when wind turbines exceed 150 meter. For offshore wind farms the permission to install turbines can be granted by two procedures: a governmental tender procedure or an open-door procedure. For both procedures the DEA holds authority. By tender procedure the government puts out the project to tender, typically on a specific location and size. By open-door procedure the project developer takes initiative to establish the offshore wind farm on a self-elected location and size. Both procedures need to be granted three approvals from the DEA. The three approvals include permission to conduct *preliminary investigations*, the *establishment approval* and the final approval for energy *utilisation*. The approvals will be granted as projects evolve and are prerequisites for one and another (Energistyrelsen, 2017).

Step 2 - "One-stop-shop"

In order to make the preparation of new CWF projects as simple as possible for project developers, the DEA has organised the overall official handling as a “one-stop-shop”, meaning that a project owner wishing to establish an offshore wind turbine project only has to deal with one authority – namely the DEA, to obtain all the necessary approvals and licences (ibid.). As a one-stop-shop, the DEA involves other relevant authorities such as the Agency for Spatial and Environmental Planning, the Danish Maritime Authority, the Danish Maritime Safety Administration, the Heritage Agency of Denmark etc. The process seeks to determine whether essential societal interests may be blocking the project. Based on the involvement process the DEA decides whether to proceed granting the project developer its first approval to conduct preliminary investigations.

Step 3 - Preliminary investigations

If the developer is granted permission the preliminary investigations of the environment are initiated. Often this part of the assessment is outsourced to engineering consultancies based on their expertise and knowledge.

Step 4 - 1st public meeting

Based on the sparse project information currently available a two week public hearing is initiated. Within this phase the public and other relevant stakeholders are able to express their ideas, concerns and propose alternative solutions to the construction of the project. This phase depends heavily on consultation and involvement with the public, key stakeholders and directly affected parties. Normally physical meetings, facilitated by the DEA, are arranged to accommodate the viewpoints of the public.

Step 5 - Scoping

Based on feedback gathered from affected authorities and the public the DEA demarcates the content of the EIA report and clarifies the level of detail.

Step 6 - EIA report

A finalised EIA report is prepared by the project developer and consultants. The report includes relevant comments and changes to the EIA based on the scoping process. The report is sent to the DEA for approval along with an application to establish the wind project.

Step 7 - Evaluation

The DEA examines the report and clarifies which, if any, shortages are evident.

Step 8 - 2nd public meeting

If the report fulfils the DEA's requirements the report and its main findings is sent for public hearing. Local communities and other affected parties are able to comment on the findings within an eight week period.

Step 9 - Final decision

If the DEA does not receive strong objections against the project the authority grants permission to establish the construction of the wind project.

Step 10 - Construction

The developer is granted permission to begin the construction of the wind farm.

Step 11 - Energy utilisation

The developer applies for the final permission to utilise the energy. This can at the earliest be granted when the construction has begun and at the latest to months before the first wind turbine is operational.

As indicated on Figure 3.1 all EIA aspects of relevance for consultancies are located in the planning phase beginning from the preliminary investigations until the 2nd public meeting.

3.2 Stakeholder management

"Stakeholders are individuals or organisations who are actively involved in the project, or whose interests may be positively or negatively affected as a result of project execution or successful project completion."

— Project Management Institute (2000)

Most projects have several stakeholders or stakeholder groups representing divergent and potentially conflicting requirements, interests and motivations. Stakeholder analysis is considered a useful strategic tool to identify current and future collaborative opportunities as well as potential threats from opposing stakeholders. However, it can be a challenging task to correctly map a project's key stakeholders, evaluate their needs, their expectations and to assess their abilities to influence project activities. Diverse collections of stakeholders can only cooperate if, despite their differences, they share a set of core interests (Freeman and Mcvea, 2001; Hayes, 2014).

The first step towards stakeholder management involves a stakeholder analysis illustrating stakeholders' interest, power and priority in relation to each other. In order to apply the stakeholder analysis tool, a clear definition of both power and interest needs to be stated. In this thesis, power is defined according to the definition developed by Pfeffer (1992):

"Power is the potential ability to influence behaviour, to change the course of events, to overcome resistance, and to get people to do things that they would not otherwise do."

— Jeffrey Pfeffer (1992)

Interest is defined as any stakeholder having an interest in the outcome of the project. This interest may be positively or negatively affected as a result of project execution or project cancellation. Stakeholders may benefit from the project succeeding resulting in supportive attitudes. Conversely, the project may damage their interests or they may perceive it to have a negative outcome for them trying to stop it or, at the very least put it in a bad light (Vogwell, 2003).

All stakeholders have interests or concerns which need to be managed according to their potential influence in the project. For that reason it is important to make sure that what is being communicated to the stakeholders meet their expectations and addresses each of their concerns. Mapping stakeholders based on the two definitions described above will help develop communication strategies (inform, involve, consult or collaborate) for addressing stakeholders. Disregarding the concerns of influential stakeholders can possibly ruin a project while creating good stakeholder relationships can result in a company acquiring competitive advantages in the form of good reputation (Rodriquez, Ricart, and Sanchez, 2002; L. W. Smith, 2000). In particular establishing successful relationships with critical stakeholders may lead to a socially complex and implicit advantage making it difficult for competitors to imitate or substitute those relations (Rodriquez, Ricart, and Sanchez, 2002).

A power/interest matrix for a generic wind power project is found in Figure 3.2. The matrix serves to provide the project developer with a broad overview over how to manage its stakeholders. It is important to note that both power and interest are to some extent qualitative implying that the results of the matrix are so too. As an example governmental institutions are classified as high power since they hold *power to stop* the project if the developer fails to adhere to governmental regulations. At the same time they have no economic or otherwise beneficial stake in the project placing them in the low interest category. They must thus be kept satisfied through all phases of the project.

The local community, consisting of local authorities, residents, businesses and land owners, have all been placed in the high power and high interest quadrant. The local community's high interest is in many cases self evident since it directly affects their local environment either positively or negatively. If community concerns are not acknowledged and managed

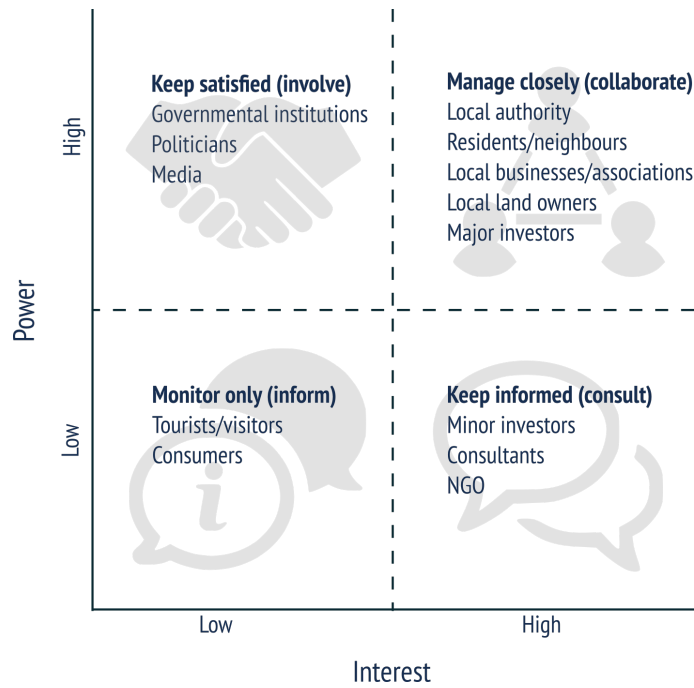


Figure 3.2: Stakeholder analysis of a generic wind power project.

correctly local resistance can become a destructive parameter towards the implementation of future CWF projects (Ellis and Ferraro, 2016), further enforcing its high-power categorisation. Project execution is often dependent on local community acceptance resulting in different collaboration strategies towards managing supportive communities and blocking communities. Supporters are maintained through direct involvement prior to decision-making, regular meetings and close consultation. Managing blocking communities is considered a challenging task, however, attempting to build confidence and minimising concerning issues is considered helpful (Vogwell, 2003). Local concerns include among others: damage to local fishery, reduction of local sailing activities, noise disturbances, visual impacts and the protection of natural resorts. Local communities may also have a positive interest in the project e.g. by economic incentives.

The stakeholder map illustrated in Figure 3.2 underpins the importance of responding to community concerns and interests due to their influential position in the matrix. However, research into social acceptance of wind energy projects has consistently highlighted a frustration among communities regarding their involvement in decision-making processes and participation related to the deployment of wind energy (Salomons and Hohberg, 2013).

Their interests need to be addressed and acknowledged before project planning since projects tend to be more successful if stakeholder concerns are clarified from the beginning (L. W. Smith, 2000).

3.3 Social acceptance

While there are set ambitious government targets to increase the share of RE in many countries, it is increasingly recognised that social acceptance may be a constraining factor in achieving this target. This is particularly apparent in the case of wind energy, which has become a subject of contested debates in several countries. In general wind energy as a technology is accompanied by a high level of support from the public but not always in terms of support for local projects (Ellis and Ferraro, 2016; Wolsink, 2012; Wüstenhaen, Wolsink, and Bürer, 2007). Even though many projects are successfully established, an increasing level of local opposition has resulted in delays, protests and local conflicts. These consequences are becoming a threat towards achieving the Danish climate objectives.

One reason for the apparently decreasing level of local acceptance (Ellis and Ferraro, 2016) is to be found in the socio-technical definition. Developers and governments only perceive the development of wind projects as a technological issue and tend to neglect the interaction of social aspects of people and society resulting in the communities being the barriers to wind energy expansion (ibid.). Based on the definition of a STS, the social aspects need to be considered with the same level of importance as the technology itself.

A recognised framework for gaining understanding of social acceptance in RE technologies is offered by Wüstenhaen, Wolsink, and Bürer (2007). The framework consists of three dimensions: *socio-political acceptance*, *market acceptance* and *community acceptance*, see Figure 3.3. Socio-political acceptance includes social acceptance on the broadest, most general level and comprises the acceptance of both policies and technologies. Socio-political acceptance is related to the support or resistance towards policies that effectively promote the implementation of wind power. Key actors within this dimension include the general public, key stakeholders and policy makers (Wolsink, 2012; Wüstenhaen, Wolsink, and Bürer, 2007). Several studies demonstrate that public acceptance for RE technologies and policies is high in many countries (Wolsink, 2005). However, this positive overall picture

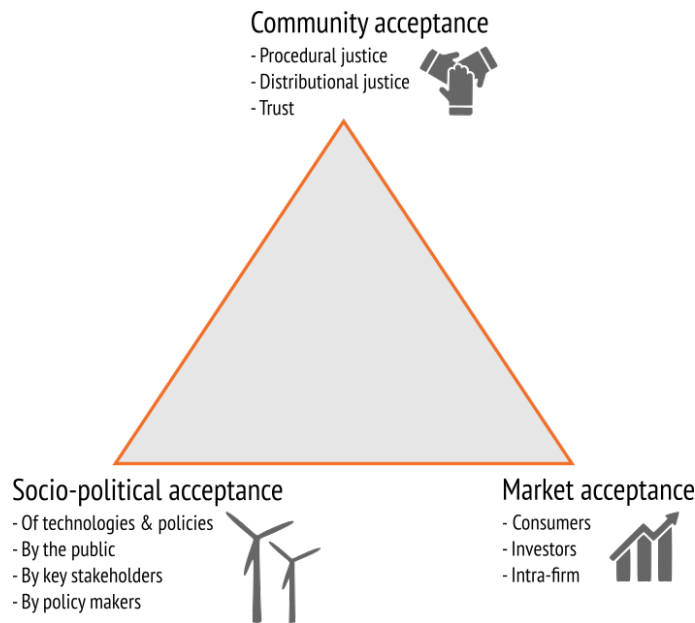


Figure 3.3: The three dimensions of social acceptance of renewable energy (Wolsink, 2012).

for RE has misled policy makers to believe that social acceptance is not a conflictual issue and especially when moving from national to local acceptance (Wolsink, 2012; Wüstenhaen, Wolsink, and Bürer, 2007). In other words policy makers have a tendency to assume that socio-political acceptance implies community acceptance.

Market acceptance relates to the willingness to support or take part in investments for wind technology by investors, financial institutions and consumers engaging in the markets created by the technology.

Community acceptance relates to the acceptance of specific wind projects by local stakeholders, particularly residents and local authorities. Here, the debate around the NIMBY syndrome unfolds, where the difference between general acceptance and resistance towards specific projects can be explained by the fact that people support RE projects as long as it is not in their own backyard (Marquez and E. A. Smith, 2000; Wüstenhaen, Wolsink, and Bürer, 2007). Factors influencing community acceptance include: 1) Distributional justice i.e. how are costs and benefits shared; 2) Procedural justice i.e. is there a fair decision-making process which gives all the relevant stakeholders an opportunity to par-

ticipate and; 3) Whether the local community trusts the information and the intentions of the investors and actors from outside the community e.g. environmental consultancies.

The former two dimensions (socio-political and market acceptance) are not regarded as key limiting dimensions. Instead community acceptance is becoming the bottleneck of wind power development (Ellis and Ferraro, 2016; Wolsink, 2012) which thus will be given the most focus throughout this thesis.

3.3.1 Factors of community acceptance

Contemporary literature has identified seven themes of controversy that are important for local acceptance of wind power projects: 1) The aesthetic appreciation of the particular landscape; 2) The emotional attachment that people have to the place; 3) Fears of impacts on the local environment and economy; 4) The ownership of a development, and the locals relationships with developers; 5) The decision-making processes, trust in decision-makers, and opportunities for the locals; 6) Sustainability (wind power is dependent on subsidies) and; 7) How actors construct narratives for or against specific wind power projects through mass media or the internet based on one or several of the themes above, and how the competition between these stories in the public debate influence the acceptance (Borch, 2013). Fast and Mabee (2015) outline two persistent themes influencing community acceptance: *place-based explanations* and *trust-based explanations* under which the seven previously mentioned themes can be classified under.

3.3.1.1 Place-based explanations

Place-based explanations focus on how wind projects alters the emotional attachments residents have to their home areas and surrounding landscapes. This aspect relates strongly to the NIMBY syndrome where feelings of place-attachments are being sacrificed for climate benefits and where cherished landscapes are being visually interrupted. Place-based concerns include visual impacts, noise disturbances and decreasing property value. Bronfman et al. (2015) argue that host communities are susceptible to feeling distrust and opposition when residents cannot identify any tangible benefits and that providing tangible assets could be a way of managing opposing concerns. Ownership and shares in the profits coming from wind farms is a strong motivation for improving community acceptance (Jobert,

Laborgne, and Mimler, 2007). In Denmark wind turbine developers are obliged to offer at least 20% of wind projects to local communities (Vindmølleindustrien, 2016).

3.3.1.2 Trust-based explanations

Trust-based explanations address issues including relationships (trust in government and developers) and process-related issues (transparency and openness, expectations of public participation, power in participation processes and the level of information provided) (Ellis and Ferraro, 2016). Clearly, a minimum level of mutual trust between communities, developers and state institutions is a necessity for the communities to accept the legitimacy of siting decisions. The degree to which host community members trust the siting process is considered an important aspect since this has proven to be a common underlying feature for many wind farm conflicts. Marquez and E. A. Smith (2000) argues that the NIMBY syndrome tends to unfold when there is a lack of trust in project sponsors or experts.

According to Ellis and Ferraro (2016) and Fast and Mabee (2015) the issue of trust has been expressed in a wide range of case studies of wind energy projects, where trust in the siting process and credibility of local and national governments is a recurring theme, particularly when authorities appear to prioritise expert opinion over knowledge and evidence presented by local communities. A common approach used by developers and planners of wind projects is the DAD strategy which is a top-down, minimally participatory method of public involvement (David and Lawrence, 2003; Wolsink, 2005). The approach frames decision-making processes and results in limiting the opportunities for public participation, creating needless opposition and mistrust by local communities.

Ultimately, trust is a social asset built by having expectations fulfilled (Matless, 2013). In order to gain local acceptance, developers have to negotiate expectations with host communities and accommodate collaborative approaches while making proactive efforts to learn the history and culture of a specific community. This allows for direct interaction between local communities and project developers through transparent communication and cooperation (Dear, 2007; Wolsink, 2012).

3.4 Public participation

"Public participation is two-way communication and collaborative problem solving with the goal of achieving better and more acceptable decisions. Public participation prevents or minimises disputes by creating a process for resolving issues before they become polarised."

— International Association for Public Participation (2008)

The EIA process raises questions regarding which stakeholders to involve, when they are to be involved and how to involve them (David and Lawrence, 2003). Currently EIA standards, Danish as well as foreign, provide only broad hints regarding how conflicting perspectives should be managed and reconciled, and how the aspect of public participation should be characterised and integrated into the process (Dietz and Stern, 2008; Larsen, Nielsen, et al., 2017; Salomons and Hohberg, 2013). Public participation in EIA has become a central and much debated theme in EIA literature. Public participation is commonly deemed to foster democratic decision-making with a broad consensus among scholars, that public participation is key to effective environmental assessment (O’Faircheallaigh, 2009). However, taking a closer look at the literature reveals that public participation in EIA is considerably diverge from developer to developer (Larsen and Nielsen, 2016). According to Glucker et al. (2013), Jay et al. (2007), and O’Faircheallaigh (2009) there is no consensus on what public participation in the context of environmental assessment means and involves.

Various case studies support the premise that public participation is key to an effective EIA. Wind energy projects in England, Wales, and Denmark illustrate that projects with high level of participatory planning processes are more likely to be publicly accepted and thus successful (Loring, 2007). High levels of information and public participation were also associated with more successful wind projects in France and Germany (Jobert, Laborgne, and Mimler, 2007). These case studies reveal that technocratic EIA processes can lead to project disintegration by immense public opposition in the form of protest marches, media campaigns and petitions against the project. In order to overcome the obstacles the case studies illustrate the need for open, trustworthy and transparent public processes.

At present, public involvement frequently occurs late in the project planning process, after major decisions have been made and occur only at two or three key decision points throughout the EIA process, see Figure 3.1. In Denmark two public hearings are considered mandatory. However, the organisation and extent of those hearings are not specified any further leaving the responsibility to the developer and consultants. According to Energi-Forsynings-og Klimaministeriet (2012) the developer is only obliged to publicly state a short description of the initiated project, indicate where comments, information or questions can be directed at and inform the public regarding deadlines for further remarks.

Earlier public involvement and greater use of collaborative procedures are conducive to more transparent and participative EIA practices assuring the local communities more democratic control over matters that affect them. Public participation is facilitated through communication. Communication strategies come in various forms e.g. media (television, radio, social media) and face-to-face meetings (public hearings, workshops, dialogues). Using various forms of communication naturally ensures a broader audience for the distributed information (Jobert, Laborgne, and Mimler, 2007; Walker, Daniels, and Emborg, 2015).

The optimal level of public participation may be assessed through the spectrum developed by the International Association of Public Participation (IAP2), see Figure 3.4. Based on the level of public impact the spectrum assists in selecting to what extent the public should be involved and sets out the promises made to the public. The two extremities *inform* and *empower* are included to frame the spectrum but are not where the most meaningful participation occurs. The informative level does not provide the opportunity for public participation at all and the empowering level provides the public with the opportunity to make decisions for themselves. The most meaningful participation occurs within the three middle levels comprising *consult*, *involve* and *collaborate*.

It is evident that the power/interest matrix (see Figure 3.2) and the PPS are to some extent related. Both bring forth suggestions for involving specific actors in the project. Where the power/interest matrix looks at all stakeholders in a project the PPS focuses solely on the public. The PPS provides a more detailed description for managing the public and determines the involvement based on a single parameter (impact) as opposed to

the two parameters (power and interest) used in the matrix. This also implies a relation between the parameter 'impact' and the parameters 'power' and 'interest', the latter two being sub-components of the former. All three parameters may be classified as qualitative, however, the two figures and the three parameters may be applied in order to secure alignment of one another.

If no attention is being paid to the different views and expectations of stakeholders, their willingness to participate may decrease which, in turn, may negatively impact the effectiveness of the overall assessment procedure. Determining the appropriate level of public participation based on stakeholder influence and the level of decision-making is perceived fundamental aspects crucial for the overall success.


INCREASED LEVEL OF PUBLIC IMPACT 					
	INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER
PUBLIC PARTICIPATION GOAL	To provide the public with balanced and objective information to assist them in understanding the problems, alternatives and/or solutions.	To obtain public feedback on analysis, alternatives and/or decision.	To work directly with the public throughout the process to ensure that public issues and concerns are consistently understood and considered.	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.	To place final decision-making in the hands of the public.
PROMISE TO THE PUBLIC	We will keep you informed.	We will keep you informed, listen to and acknowledge concerns and provide feedback on how public input influenced the decision.	We will work with you to ensure that your concerns and issues are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.	We will look to you for direct advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.	We will implement what you decide.
EXAMPLE TOOLS	<ul style="list-style-type: none"> • Fact sheets • Websites • Open houses 	<ul style="list-style-type: none"> • Public comment • Focus groups • Surveys • Public meetings 	<ul style="list-style-type: none"> • Workshops • Deliberate polling 	<ul style="list-style-type: none"> • Citizen Advisory committees • Consensus-building • Participatory decision-making 	<ul style="list-style-type: none"> • Citizen juries • Ballots • Delegated decisions

Figure 3.4: The public participation spectrum (iap2, 2016).

3.5 EIA decision-making

Decision-making within EIA may be categorised into two opposing approaches: Technical-Regulatory (TR) and Appropriate Collaboration (AC) (Daniel and Cheng, 2005).

The TR approach accommodates the view that management of environmental concerns is defined by two driving forces namely, the value placed on technical solutions to problems and the perceived need for regulations to implement and enforce those solutions (Walker, Daniels, and Emborg, 2015). Combined these forces have created a decision-making approach where technical expertise is valued higher than local knowledge and input. Conventional public involvement techniques typical of TR provide highly controlled one-way flows of information, guard decision-making and utilises the command and control strategy. From this approach citizens may be led to believe that decisions were made before a public meeting, with the perception that the DAD approach was applied (Hendry, 2004).

In contrary the AC approach emphasises the need for collaboration. The approach focuses on opportunities of joint decision-making by utilising dialogue and deliberation between stakeholders. The approach improves decision-making through constructive two-way flows of information securing interaction and mutual learning. According to Walker, Daniels, and Emborg (2015) public meetings are not considered collaborative. Instead participation methods comprising workshops, field trips and round tables aim at securing appropriate collaboration between stakeholders. The optimal balance between the two approaches vary depending on the type of project, graphically illustrated in Figure 3.5.

The figure presents three different projects whereof maintenance of water quality is located towards the TR trajectory while the development of a national park tends more towards the AC trajectory. According to Walker, Daniels, and Emborg (*ibid.*) the development of wind farms are located somewhere in between. Maintenance of water quality is essential to most communities however there is little interest in how it is done. For that reason the level of TR is considered more relevant with a high focus on technical aspects and where the public is informed of the process. Creating a national park does not require the same level of technical demands and with the national park's main purpose to satisfy the local

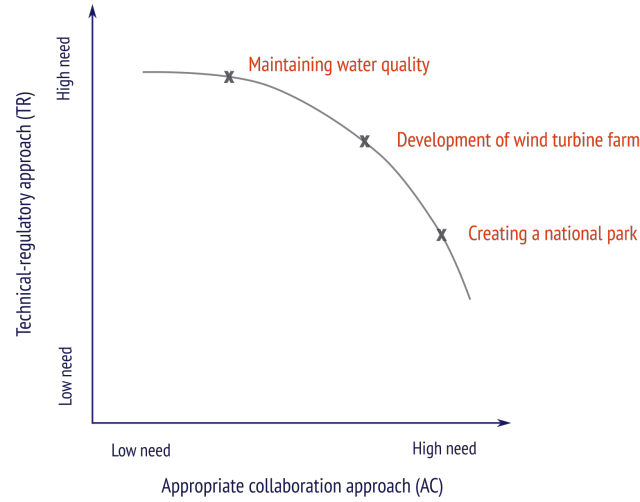


Figure 3.5: Technical-regulatory and appropriate collaboration strategies (Walker, Daniels, and Emborg, 2015).

community and tourists this provides the opportunity to involve the public to a high degree.

The informative and educative communication strategy which the TR utilises is not considered suitable for wind power projects based on the communities position in the stakeholder matrix as well as the PPS. These tools imply the communities to be involved through interactive and collaborative approaches which implies a high level of AC approach throughout decision-making processes. On the other hand the technical complexity of wind power projects calls for a high level of TR making this approach as important as AC.

3.6 Strategic capabilities

Since the EIA in case of CWF is a mandatory and recurrent requirement, various engineering companies have specialised within such assessments. This creates competition between companies operating within the same environment and industry. Within engineering consultancy companies such as COWI, Rambøll and NIRAS compete for EIA projects. Although companies are bidding on the same projects variations are found in their project proposals due to varying strategic capabilities. A company's strategic capabilities are the capabilities that contribute to its long-term survival or competitive advantage. Strategic capabilities consist of resources and competences. Whereas resources describe the assets that organisations have, competences describe the way those assets are deployed effec-

tively. Typically, organisations have both resources and competences whose effectiveness and efficiency depend on: The systems and processes by which they are managed and; The relationships and cooperation between people (Johnson et al., 2015).

In order to secure an organisation's long-term success the strategic capabilities need to be dynamic, meaning that the organisation is able to renew and recreate its capabilities in order to meet the needs of a changing environment. As previously mentioned, the level of local resistance has proven to be affecting the development of CWF projects and with a new legislation giving communities greater influence to object against future wind projects there are thus indications of a changing environment to which capable companies may adapt quickly to gain competitive advantage over the competitors. This legislation will be further elaborated in chapter 4.

Understanding how organisations are different from their rivals may be the basis for achieving competitive advantages and superior performance. This concept is known as the Resource-Based View (RBV) of strategy (ibid.). A way for companies to achieve sustainable competitive advantages is to possess distinctive capabilities. These are dependent on an organisation having unique capabilities that are: Of *value* to its customers; Which are possessed uniquely by one organisation illustrating its *rarity*; Difficult to *imitate* by competitors and; Which is supported by the *organisation*. For the purpose of diagnosing distinctive capabilities the VRIO framework can be applied to analyse capabilities' value, rarity, inimitability and organisational support, see Figure 3.6.

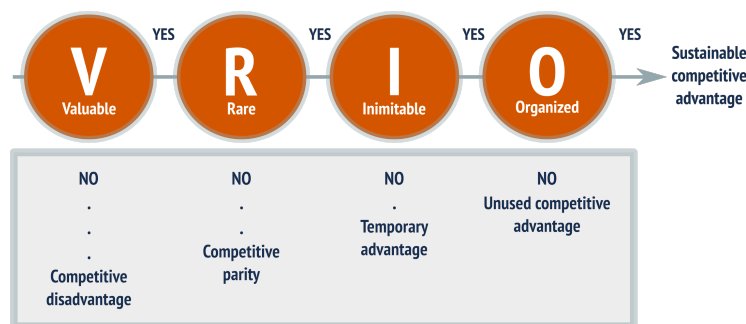


Figure 3.6: VRIO framework analyses internal resources and capabilities to determine sustainable competitive advantages.

Chapter 4

The Danish Wind Industry

This section describes wind power in Denmark and aims at increasing the reader's understanding of the Danish wind industry. Additionally, perspectives from the recent energy settlement from 2018 are described.

Europe has some of the best wind conditions globally, resulting in cheap and exploitable RE resources. Wind energy remains the second largest form of power generation capacity in Europe, closely approaching gas installations, see Figure 4.1 (Windeurope, 2017b). The increased focus towards RE has become a significant factor not only in Denmark but on a global scale. Denmark is often perceived as a pioneer within the field of wind energy and for that reason countries seek towards Denmark to learn the aspects of planning and

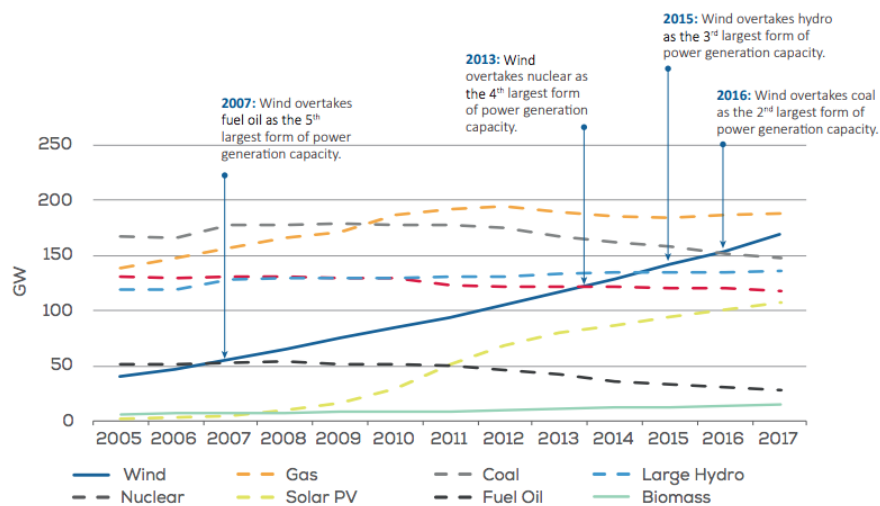


Figure 4.1: Total power generation capacity in the EU 2005-2017 (Windeurope, 2017a).

implementing large scale wind farms into the overall energy system (Vindmølleindustrien, 2017a). The Danish part of the North Sea is considered a cost-effective area for the deployment of wind energy resulting in Denmark having a geographical advantage within large scale production of electricity compared to the neighbouring countries (Vindmølleindustrien, 2017b). The wind resources are on average 50% better offshore compared to positions onshore. However, installation, operational and maintenance costs of offshore wind farms are more expensive than onshore farms due to the offshore conditions comprising wind, weather and distance to shore (Vindmølleindustrien, 2018).

With the new energy settlement from 2018 Denmark's international position is strengthened further due to an increased focus on RE sources, research investments and energy regulations. With the new settlement it has become the objective that 55% of the Danish energy consumption must stem from RE sources within 2030 (Energi- Forsyning og Klimaministeriet, 2018). Additionally, the settlement comprises the installation of three offshore wind farms with a total capacity of 2400 MW by 2030. The installation of wind farms of this size will be among the biggest in Europe. The settlement attach great priority to offshore wind turbines while the amount of rural wind turbines will be reduced by half from 4.300 to 1.850 in 2030.

In 2017 Denmark was introduced to a new legislation which became effective for open-door projects. The legislation gives affected municipalities the possibility to object against CWF projects if the project is within a 15 km range from shore (the new energy settlement has increased the range from 8 km - 15 km) (ibid.). If a municipality objects against the CWF the case must be assessed in the energy and climate committee after which the minister rules for decision. The objection must, however, occur before the first approval for conducting preliminary investigations has been granted, see Figure 3.1. The new legislation places the municipalities in the role of a mediator, representing the viewpoints of local communities giving the communities more power in the deployment of future wind projects.

Several other political attempts have been introduced to accommodate the opposition aiming to involve the local population by offering benefits. The settlements include, among others, the purchase scheme and the depreciation settlement.

Chapter 5

Case Study Description

This chapter describes the contemporary case study concerning the Danish CWF project, the Little Belt South (LBS). The case study involves various stakeholders and reveals conflicting and diversifying attitudes towards the deployment of the wind farm. The CWF is initiated by Sønderborg municipality as part of the Danish green transition. The project developer is the municipality-owned SF who manages and maintains the daily handling of waste, recycling, water, waste water and smaller parts of the heating supply for citizens in Sønderborg municipality. The Danish engineering consultancy COWI is hired by the developer as an environmental consultant to carry out the EIA. Due to the offshore-based location the DEA holds authority.

5.1 Little Belt South

LBS may be located in the southern Little Belt between Lavensby Strand and Helnæs on Funen, see Figure 5.1a. The proposal for the CWF project suggests a 4 km distance from shore subject to change based on the final calculations, preliminary investigations and environmental impacts (LillebæltSyd, 2017). However, as seen on Figure 5.1a the potential wind turbines cannot be installed more southern due to the waters around Als and Flensborg Fjord which are preserved Natura 2000 areas. The LBS project comprises the installation of 20-40 wind turbines, with a maximal height of 200 meter and a total capacity of 160 MW (4,0 - 8,0 MW/turbine). If 200 meter high turbines are installed, only 20 turbines are needed in order to fulfil the capacity requirement. However, if they are 150 meter high, 40 wind turbines are needed. From the outset, it has been the ambition to anchor the ownership of the turbines on local citizens and businesses. Therefore, citizens

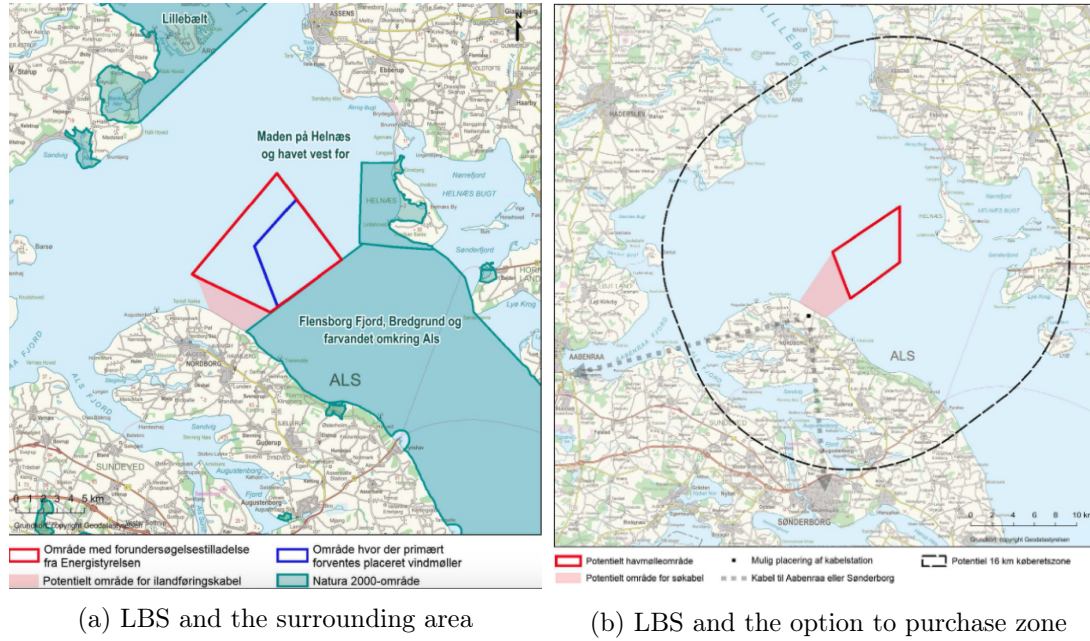


Figure 5.1: The potential location for the Little Belt South wind farm.

in municipalities within 16 km range from the site of establishment will be offered share-holdings, see Figure 5.1b. As the map indicates the local communities mainly affected are Sønderborg municipality (south) and Assens municipality (north-east).

The project is initiated through open-door procedure where SF has taken initiative to establish the CWF on a self-elected location. In June 2017 SF was granted permission by the DEA to initiate preliminary investigations on the elected location and its surroundings, see Figure 3.1. The area of investigation is marked on Figure 5.1a. From the 15th of June 2017 and 18 months onwards (December 2018), data gathering and preliminary investigations of the area's avian life, harbour porpoise, noise investigations and visualisations will be carried out in order to clarify potential impacts on the area of construction and its surroundings. Hereafter, the second public meeting is expected to take place in the beginning of 2019. If the project is granted permission the construction can begin in 2020 and be completed at earliest in 2021.

The idea of positioning an offshore wind farm in the Little Belt emerged in 2012 where the Danish wind turbine committee screened the Danish waters for suitable locations for future

CWF. Here, the LBS location was chosen as a suitable location due to the favourable sea bed and beneficial wind conditions (LillebæltSyd, 2017).

5.1.1 The ProjectZero initiative

In order to achieve the political objective of becoming fossil fuel free by 2050, the role of wind energy has increased to playing a substantial part of fulfilling the Danish RE transition. In Sønderborg ProjectZero has been initiated aiming at reducing the overall level of CO₂ and securing the municipality to become CO₂ neutral by 2029. With the realisation of the LBS project the Sønderborg area will be able to meet the ProjectZero vision (ProjectZero, 2017). ProjectZero was established in 2007 as a public-private partnership between Sønderborg municipality, Bitten & Mads Clausens Fond (Danfoss), the Nordea foundation and Ørsted in order to develop a sustainable business case for the green transition in the Sønderborg area. The ProjectZero vision aims at creating economic growth and sustainable jobs in the Sønderborg area based on urban development, new housing concepts and efficient energy utilisation based on the area's own resources. The initiative is strongly backed up by local citizens, politicians, companies, stores and investors who have made it their vision to achieve the local climate goal. Zero landlord, Zero tenant and Zero housing are all initiatives created by Sønderborg, aiming at reducing the energy consumption of local citizens. Similar initiatives have been developed for organisations and means of transport throughout the community. Sønderborg specific public involvement initiatives have also been rolled out in the form of a local TV program called *"the big transition"*. This program describes the ongoing process of the ProjectZero, keeping locals citizens and other interested parties updated and informed. The initiatives have created hundreds of green workplaces and resulted in reducing the total CO₂ emission with 35% from 2007-2015 (ibid.).

ProjectZero seems to have created a strong local support of green initiatives in Sønderborg, leading to a seemingly positive attitude towards the LBS project. In contrary to the supportive Sønderborg area the same positive impression towards the LBS project is, however, not observable in Assens. This is evident through local media coverage but also through the resistance movement *Redlillebælt.dk*. The stark contrast in public perception is the motivation for using this project as the case study.

5.1.2 Public involvement

COWI and SF have involved the communities through various initiatives see Figure 5.2. Several of these are governmental requirements such as the two public hearings and the offering of owner shares (20%). Other initiatives include visualisation meetings and other informative measures including a Facebook page.

Initiatives	Purpose
Two by-law required meetings	Interact with the communities
Three visualisation meetings	Inform & educate (one-way flow)
Homepage (Lillebæltsyd.dk)	Inform & educate (one-way flow)
Economic share in the LBS project	Create a sense of ownership
Social media (Facebook page)	Inform & educate (one-way flow)
Summarising notes (Q/A) from the first public meetings	Inform & educate (one-way flow)

Figure 5.2: Initiatives introduced by Sønderborg Forsyning and COWI.

SF has created a website, *Lillebæltsyd.dk* aiming at informing affected and interested stakeholders by providing updates of the project's ongoing progression. SF is also active on social media through their developed Facebook page called *Havmølleparken Lillebælt Syd*.

The public meetings were held in the aforementioned primary local communities, Assens and Sønderborg. The first public meetings took place the 24th of August 2017 in Nordborg (targeting Sønderborg) and the 29th of August 2017 in Torø Huse (targeting Assens), and gave all affected stakeholders the opportunity to elucidate ideas and subjects for further investigation in connection to the EIA. The following stakeholders were represented at the public meetings: Representatives from ProjectZero, COWI, SF and representatives from the respective communities. According to (UK) the facilitation of public meetings is commonly the responsibility of the authority. However, in this case the DEA chose not to participate and left the responsibility to SF and COWI.

Chapter 6

Analysis and Discussion

This chapter seeks to apply the theory and the gathered data on the chosen case study. This is done in order to analyse and elaborate upon various perspectives from the case study aiming at developing sub-conclusions to the research questions. In order to secure optimal readability the sections comprising analysis and discussion have been merged.

6.1 Stakeholder analysis

Key stakeholders in the LBS project have been placed within the stakeholder matrix according to their level of power and their level of interest, see Figure 6.1.

- The DEA is placed within the high level of power and low level of interest quadrant. Since the DEA holds the final approval for the project they illustrate a high level of power but a low level of interest since the outcome of the project is not considered a direct interest for them.
- ProjectZero is located within the low level of power and high level of interest. ProjectZero is highly interested in seeing the project succeeding due to its goal of a greener Sønderborg. The initiative is not considered to hold direct power over the project outcome since they influence the project indirectly in the form of prior visioning and engagement.
- The local communities (comprising residents and authorities) in Assens and Sønderborg both have high level of power due to the proven influence local communities have on the outcome of the project (Ellis and Ferraro, 2016). Their high power is also evident in the previously mentioned bill, giving affected municipalities greater

influence on CWF projects. Since the developer is owned by Sønderborg municipality it is important to note that Sønderborg authority may have more power than the authority in Assens. The two communities have high interest in the project, however, for two opposing reasons. Sønderborg is interested in the project *being* completed due to the community's vision of becoming CO₂ neutral. Assens has a high interest in the project *not being* completed due to their negative perception of the project.

- COWI is placed within the high level of interest since the company is considered successful if the project is successfully implemented. However, the company's level of power is reduced since it is employed by the developer who controls COWI's role in the project.

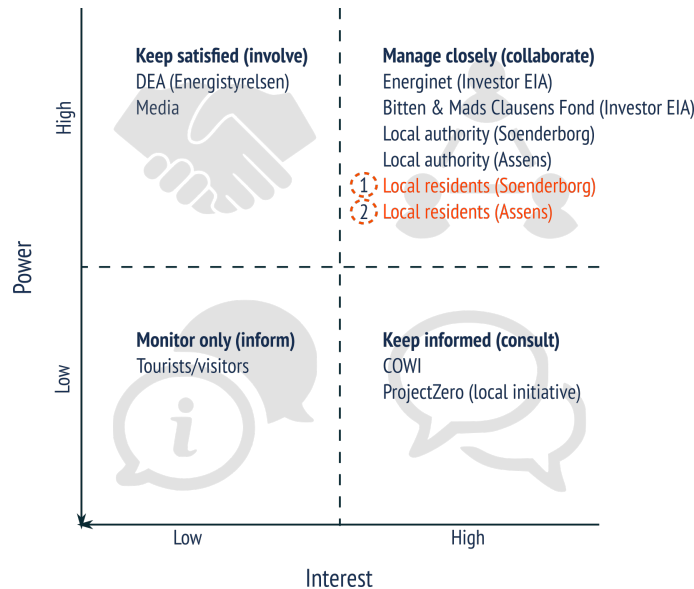


Figure 6.1: Stakeholder analysis comprising key stakeholders of the Little Belt South project.

Sub-conclusion:

The local communities' position in the stakeholder matrix illustrate that they should be managed in close collaboration with the project developer throughout decision-making processes. Local supporters should be managed in order for them to remain supportive while blockers need to be dealt with due to their influential impact on the project. Creating good relations to blockers is considered essential and managing their expectations and concerns should be prioritised (Rodríguez, Ricart, and Sanchez, 2002).

6.2 Local acceptance

To assess the current level of local acceptance several tools have been used. A survey has been conducted, interviews have been held and publicly available information from social media has been assessed. This section serves to analyse the current state of acceptance towards the LBS project.

The survey was made public on the developer's Facebook page *Havmølleparken Lillebælt Syd* and the developer's project specific homepage *Lillebæltsyd.dk*. The survey received 18 answers whereof eight participated in the public meetings. The results are illustrated on Figure 6.2. Although the survey population size is too small to draw quantitative conclusions the results do indicate a low level of satisfaction from the community of Assens. The indicators prove little satisfaction within the level of trust, participation and acceptance. In contrary the results from Sønderborg indicate a higher level of acceptance. Based on the survey results the two most concerning aspect are: 1) My concerns have decreased after the public meeting and; 2) I feel heard and understood by the specialists included in the project.

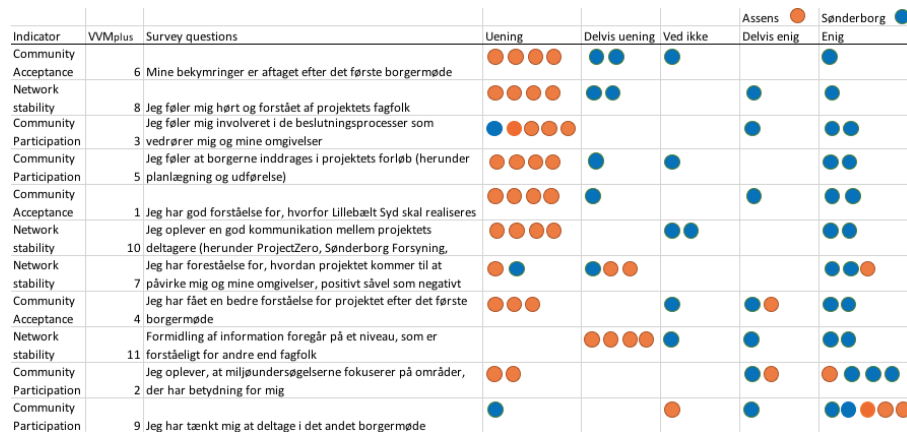


Figure 6.2: The survey results based on the first public meetings in Assens and Sønderborg.

The survey indicates a significant local resistance towards the LBS project. In the following the explanations for the resistance will be outlined.

6.2.1 Place-based explanations for local resistance

The opponents of the LBS project act territorially to protect their highly valued places against the development of the CWF project. The chosen location for the LBS project seems to be a sore spot for many locals who perceive this area as being: A preserved area; Too small to contain the amount and size of the turbines proposed or; Of high value for holiday resorts affecting the community's tourism (Kold, 2017). In general the community of Assens seems to support the overall development and expansion of wind energy in Denmark but simply take precautionary actions against the development of the wind project in their own back yard:

"The turbines will be placed within the most scenic landscape, which there soon won't be any left of. I support wind energy but you need to take care of not destroying the landscape."

— Assens citizen (survey, translation)

The natural resort surrounding Helnæs and Assens seem to be of great importance to the local community who has established a resistance movement, *Redlillebælt.dk*, in order to preserve the valuable areas. The movement clarifies the amount of damage which the LBS project is believed to induce on the area and has created visualisations illustrating the area's future if the project is to be realised. According to Redlillebælt (2017), SF desires to plan the construction of a "gigantic" CWF of "astronomical" dimensions. According to (AE) and the rest of the COWI team, the visualisations made by *Redlillebælt* seem unrealistic and tend to exaggerate the illustration resulting in a far more intimidating landscape than COWI anticipates. The act of applying exaggerating terminology and extreme visualisations is by COWI perceived to be a way of creating fear towards the LBS project aiming at increasing the local resistance.

6.2.2 Trust-based explanations for local resistance

As described in the section 3.3.1 a consistent barrier in wind projects is the management of stakeholder relationships and more specifically the local communities. In order to secure project success SF and COWI need to generate sufficient support from communities who are significantly impacted by the project's outcome, in this case the communities of

Sønderborg and Assens.

It is fair to assume that a higher level of trust is present between the community of Sønderborg and SF and COWI since the developer is a local representative. The local developer is thereby entrusted as a trustworthy channel of information making it easier to shepherd through project modifications. In contrary, Assens seems suspicious of the developer's and the consultancy's objectives believing that they were only addressing core problems of importance to Sønderborg and tended to disregard the concerns of the Assens citizens:

"I understand that the project is a prestigious project for ProjectZero and Sønderborg municipality, who seem indifferent to the opponent's viewpoints."

— Assens citizen (survey, translation)

Perceiving that Assens' viewpoints are not worth listening to will negatively affect the community's level of trust in SF and COWI and affect their willingness to collaborate (Hayes, 2014). By giving insufficient attention to the viewpoints of Assens, COWI can be perceived as a consultant lacking adequate experience in managing non-technical barriers such as local perspectives triggering mistrust and scepticism from opponents. As mentioned in section 3.3.1.2 lack of trust in SF and COWI may reinforce the level of NIMBY increasing the overall resistance.

While distributing the survey some of the respondents immediately expressed a sense of uncertainty regarding the objectivity of the survey due to the author's student job in COWI. The questioning of COWI's integrity and confidence is considered a significant concern and weakness which already has proven to be a challenge but also is considered a challenge moving forward since COWI's part in the LBS project first is expected completed in 2019-2020.

One of the causes for COWI's 'poor' image among the local communities may be related to the first public meetings. According to (AE) the approving authority, in this case the DEA, usually facilitates the public meetings. However, in the case of LBS the DEA chose not to participate leaving the responsibility to SF and thereby COWI:

"In this case, and this was actually the first time I ever experienced it, the developer was responsible for the public meeting since the authority didn't want to do it. This came as a surprise to me and I think this action was a mistake."

— AE, (interview, translation)

According to (UK) this course of action seems to be the authority's way of avoiding additional tension between the affected parties:

"When the authority deselects being present at a public meeting, I perceive it as if they were nervous that the meeting would give rise to critical comments against the DEA since they are the ones making the final decision regarding the project's approval. Their final decision is purely based on the developed EIA report and the attendance of public meetings is where they get the opportunity to form an opinion of what the public thinks about the project - so this is simply bad form."

— UK, (interview, translation)

The DEA's absence may have had two influential impacts: 1) It is perceived that the DEA knew about the resistance from the local communities which naturally would result in negative backlash. Under normal circumstances this backlash would affect the DEA but since they didn't attend the negative responses were directed towards SF and COWI affecting the trust in both parties. 2) According to the stakeholder map both SF and COWI have high level of interest in the project, both interested in the project being executed. For this reason they can not be considered objective in the matter. Having a stakeholder (DEA) with less interest in the project outcome may yield a seemingly more objective meeting increasing the communities' trust in it.

6.2.3 Community participation

It is evident from the discussion above that issues arose regarding community participation. Misalignment of expectations may be one of the main factors resulting in issues during the first public meetings.

Clarifying stakeholder expectations before public meetings is considered a necessity since misaligned expectations may result in increased dissatisfaction and additional opposition.

By analysing the first public meetings misaligned expectations are revealed. The communities were expecting answers to concrete environmental concerns e.g. visualisations, the total height of the wind turbines and the total number of turbines. In contrary COWI expected to obtain community interaction regarding potential areas for investigation in the EIA. These tendencies are evident from the interview with (AE) who was asked:

Interview Question: "Were you [COWI] capable of answering and delivering satisfactory answers to the locals' questions [during the first public meetings] ?"

"No and what lies in the objective of the first public meeting is that we are not supposed to answer questions, however, the purpose of this meeting is to say, now we start the planning of the project and ask if the citizens have any ideas and suggestions on what we [COWI] should investigate. So the whole purpose of the meeting is actually something else and this was maybe not made clear at the public meetings. I have been part of many public meetings where the citizens get a little frustrated because they are not receiving answers to their questions."

— AE (interview, translation)

The local community also identified the misalignment in expectations:

"As the meeting in Torø Huse (Assens) was organised the project was presented as so what do you [citizens] have as suggestions for improvements. There was not focus on the fundamental aspects of what the project will do of harm on the Little Belt."

— Assens citizen (survey, translation)

COWI engaged the first public meetings expecting local involvement to determine areas of investigation. The communities were expecting an informative session seeking specific answers from COWI. As both the stakeholder matrix and the PPS identified COWI and SF should collaborate with the local community due to their significant interest, power and impact in the project. This was exactly what COWI attempted but failed at because the local community was not prepared for such engagement. The main issue thus seems to be misaligned stakeholder expectations: Had the community been prepared for such

involvement in the project they may have perceived the meeting in a more positive light.

The survey indicates that the public meeting was better perceived in Sønderborg than in Assens. Part of the explanation for this difference may be found by examining how the local communities were involved prior to commencing the EIA. The community of Sønderborg has through the ProjectZero initiative been introduced and informed of the vision of becoming CO₂ neutral since the establishment of the local initiative in 2007. Until 2017 when the first EIA approval was granted, ProjectZero has been able to awaken the community's interests and benefits of the green transition. It has outlined a clear sense of direction for achieving the mutual vision, giving the community goals to follow and empowering them through the process. The ProjectZero website contains local success stories illustrating how local citizens since 2007 have reduced the CO₂ level and influenced the overall goal of becoming CO₂ neutral. ProjectZero has involved the public through local initiatives including workshops (benefits of sharing economy and green housing projects) and informed them of the area's continuous improvement through various channels comprising media coverage (local TV and websites). Additionally, ProjectZero has prepared a citizen survey among the municipality's citizen panel, which has assisted in responding to how energy savings, renovation and energy-efficient behaviour should be communicated to all citizens throughout the Sønderborg area. This course of action illustrates a direct and open dialogue with the local community ensuring that concerns are understood and considered. Furthermore, ProjectZero looks for direct advice on innovative ideas in formulating and communicating the vision constructively to the Sønderborg area and seeks to incorporate the recommendations into their decision-making process. These initiatives illustrate a highly interactive and collaborating approach between ProjectZero and the local community. These initiatives may have secured the support and interest of the Sønderborg community.

The prior involvement which Sønderborg has undergone is not reflected in Assens. The community has had no introductory process of informing and involving the community towards the LBS project which may have influenced the community's opinions towards the project negatively:

"I pray that the wind turbines are located where they belong, namely on the sea and not in the inland waters."

— Assens citizen (survey, translation)

"... I feel this project is being imposed by Sønderborg Forsyning. We from Helnæs and Assens are paying for the project with our view. Offshore wind turbines must be located offshore and not along the coast."

— Assens citizen ((Kold, 2017), translation)

Due to the misaligned expectations COWI was not able to provide satisfactory answers to the host communities. This issue is consistent with the survey's results which highlight the aspects as being the most concerning matter to the communities, see Figure 6.2.

6.2.4 Decision-making based on TR versus AC

Fulfilling Danish EIA requirements necessitates the use of both the TR approach as well as the AC approach. Part of the environmental assessment requires technical knowledge and expertise implying a high level of TR. However, community interaction is as mentioned considered more successful if facilitated through the AC approach where the community is involved in the decision-making. This illustrates the expectation of COWI to manage both TR aspects as well as AC aspects.

Based on COWI's history with EIAs it is fair to assume that COWI lives up to the technical requirements of the assessment placing them at the optimal level of TR. The company, however, lacks competencies in managing community issues throughout the public meetings, dislocating them from the appropriate level of AC, see Figure 6.3.

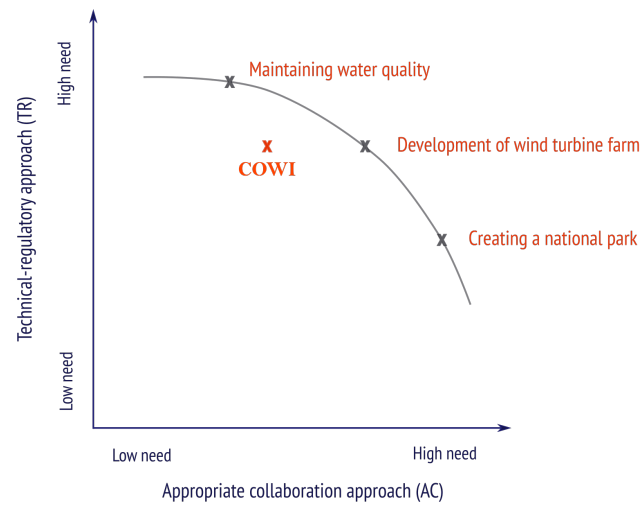


Figure 6.3: The level of technical-regulatory and appropriate collaboration approaches applied on COWI.

One of the most obvious places for COWI to introduce the AC approach is through the public meetings. However, according to (UK) COWI has a high tendency of applying the TR approach throughout public meetings:

"I've previously experienced that public meeting have become highly technical where several specialists take turn in explaining about their field of expertise - this can, however, quickly be perceived as they stand at a lectern looking down upon the citizens."

— UK (interview, translation)

It was also perceived by the communities as the TR approach:

"... they [COWI and SF] thought the natives of Funen were ecstatic about their project but were met with great resistance and the suggestions (which we thought should be included in the EIA), were almost swept off the table as non-interesting to the project developer."

— Assens citizens (survey, translation)

The controlling one-way flow of information, characteristic of the TR approach, is additionally illustrated in the PowerPoint slides developed by SF to host the visualisation meetings:

"Thank you for tonight! We'll see you again in the fall when we have additional information to share."

— IN (Power Point slides - visualisation meetings, translation)

The way COWI delivered project information was considered by the community to follow the DAD strategy minimising the opportunity for collaboration and focusing on one-way information sharing. This is also supported by the additional initiatives which COWI and SF have presented, see Figure 5.2. COWI has initiated three visualisation meetings due to the immense amount of questions regarding this matter. Therefore, visualisation meetings were held providing information to the local communities implying a reactive and educative communication strategy. The reactive strategy is, however, not considered beneficial since resistant stakeholders may develop opposing behaviours if managed reactively. Once the resistance is created it becomes a major challenge for turning blockers into supporters. Therefore SF and COWI need to apply proactive strategies towards Assens community and make sure that the support from this stakeholder group is created early on (Hayes, 2014). Several actions from SF and COWI support the assumption that managing resistance has been highly reactive rather than proactive.

As discussed earlier (AE) attempted to involve the local communities through the first public meetings but failed due to misalignment of expectations. This indicates that COWI may perceive themselves as applying the AC approach to a higher extent than illustrated in reality. In order to achieve successful collaboration COWI must acquire local understanding and seek towards other collaborative methods to involve host communities e.g. round tables, workshops or field trips (Walker, Daniels, and Emborg, 2015).

Sub-conclusion:

Whereas the overall intention of community participation was to improve the decision-making processes and increase the support from the communities it is perceived that the public meetings only created a bigger gap between the specialists and the communities. A main reason for this issue is due to misaligned expectations and COWI's laissez-faire approach towards outlining and aligning these. Taking initiatives to involve the local communities in decision-making processes while counterbalancing collaborative and technical facilitation methods is considered a necessity to secure community acceptance.

6.3 Improving community acceptance

The centralised EIA approval regime may act as a steering system navigating through requirements but can also engender delays from opposing communities (Fast and Mabee, 2015). For that reason the EIA process must be accompanied with collaboration with local communities (ibid.) aiming at securing community acceptance for CWF projects. This aspect is, however, perceived a de-emphasised matter in the COWI regime due to the organisation's laissez-faire approach towards prioritising the aspect of community acceptance putting the relationship of host communities at stake.

Based on the analysis of the LBS case study it is considered a fundamentality for COWI to increase attention towards: 1) Understanding local identity and; 2) Seeking opportunities for collaborating with affected host communities in decision-making processes. To accommodate this matter COWI is left with three feasible solutions: 1) The zero-alternative which involves doing business as usual, 2) Avoid projects where non-technical barriers may be encountered 3) Embrace the necessary changes of managing community acceptance. The first option neglects the aspect of community acceptance and continues doing business as usual. This possibility goes against all the theories and evidence that acceptance is a topic of relevance which will be reinforced in the coming years. The second option is not considered a sustainable option since most of COWI's project portfolio to some extent involves affected stakeholders which can engender opposition. This option can result in disrupting COWI's current business model, making the organisation dispensable. The third option is considered the most uncertain option but also the one with the highest potential gain. In order to pursue this opportunity COWI must acquire dynamic capabilities within this field if the organisation wants to accommodate the needs of managing non-technical barriers. For this purpose an analysis of COWI's current resources and competences is conducted illustrating the organisation's opportunities and limitations for pursuing this possibility, see Figure 6.4.




	Resources		Competences
Physical	<ul style="list-style-type: none"> * Computer systems, operational (Microsoft Office, SAP, SharePoint) * Computer systems, design (CAD, revit, abaqus) 		<ul style="list-style-type: none"> * Ability to control flows of information (documents, drawings, mail correspondence) * Advanced design tools applied for creating 2D/3D visualizations, simulations and calculations
Financial	<ul style="list-style-type: none"> * Balance sheet * Cash flow 		<ul style="list-style-type: none"> * Possibility to re-invest * Manage cash flows, raise funds
Human	<ul style="list-style-type: none"> * Managers * Employees (master of engineering, bachelor of engineering, economists, master of law, architects, anthropologists, IT support, technical assistant, trainee, correspondents, canteen personnel) * Customers 		<ul style="list-style-type: none"> * Lead and manage employees efficiently * Apply expertise and experience from a broad portfolio of employees to solve complex issues * Challenge and motivate employees * Train, develop and educate employees * Ability to create and maintain strong customer relationships

Figure 6.4: Overview of COWI's strategic capabilities.

Figure 6.4 provides an overview of COWI's current resources and capabilities. The figure illustrates that the consultancy's main resources comprise human knowledge and expertise mainly within technical fields.

Among COWI's resources are anthropologists which may be a potential resource for accommodating the specified needs for managing non-technical issues. Through application of anthropologists a deeper understanding of human behaviours based on societal and cultural aspects is achieved aiming to reduce misalignment and miscommunication between consultancy and local community. Contrary to the rational mindset of engineers anthropologists are able to assess and evaluate human needs and concerns as well as understand local identities which often tend to be neglected within the engineering field. Additionally, anthropologists may intercept important and relevant areas which otherwise would have been overlooked and make sure to integrate social knowledge e.g. ProjectZero and its effects on the LBS project. Even though anthropologists are a part of COWI's current resources their existence in the company is according to (BL), (LJ), (HL) and (MD) limited or completely unknown to most parts of the company indicating lacking utilisation of their competences. Taking this into consideration it is perceived that COWI potentially has the resources needed to accommodate the change but lacks the necessary competences for putting anthropologists into play. To make use of their resources an external consultant, additional training or education may be ways of acquiring the needed competence. This strategic capability would not only be of value to current and future EIAs but can be applied to a broad portfolio of COWI's projects including airports, roads, tunnels and highways. Adding this strategic capability to the company's business model can add value

in the form of reducing the probability of COWI encountering local resistance in future projects. The strategic capability can affect the company's external network improving customer relationships and increase integrity by illustrating that the engineering company is capable of conducting technical EIAs but also manage intangible aspects comprising community concerns, needs and expectations which have proven to be bottlenecks across Danish wind projects (Mandrup, 2017; Sommer, Bjørnstad, and Frandsen, 2017).

The LBS case study also illustrates that public exposure to green initiatives prior to projects being started may aid in community acceptance. The use of anthropologists could thus be used prior to the EIA through anthropological investigations and analysis. By providing this service COWI may attempt to accommodate the needs and concerns of the local communities' before resistance emerges which otherwise could result in the potential ceasing of projects.

Even though the majority of the COWI respondents didn't know of the company's anthropologists they all agreed that it would be prudent to apply anthropologists since they are able to provide new perspectives and optimise the basis for decision-making. This argument was further enhanced by a statement illustrating that COWI recently lost a project to one of its competitors due to an insufficient team composition. According to (MD), COWI was rejected due to its lack of anthropologists:

"It's difficult to appraise how people react towards different projects and for this purpose anthropologists can be very helpful. Unfortunately, we rarely use anthropologists in our organisation in contrary to NIRAS. The latest project which we bid on was, among other parameters, lost to NIRAS due to the insufficient team composition and unlike NIRAS we didn't include an anthropologist as part of the project team."

— MD (interview, translation)

With the added competence the strategic capability of having and applying anthropologists can be analysed based on four criteria which form the basis for achieving competitive advantage:

- *Value*: The strategic capability is considered valuable to the organisation since the recommendation embraces opportunities and neutralises threats from the organisation's environment. Secondly, it is considered valuable to customers since the capability enables the organisation to provide anthropological investigations and analysis prior to and during the EIA securing customers an understanding of relevant stakeholders and the optimal management hereof. Lastly, the opportunity can minimise the probability of delays and project postponements resulting in minimising costs.
- *Rarity*: Given the fact that NIRAS currently utilises anthropologists and according to the company's own web page provides solutions within *anthropological and sociological analysis* it can be discussed whether the capability is rare. However, if the capability is only possessed by one or a few others the capability will remain rare. Comparing the use of anthropologists in NIRAS with Rambøll no obvious signs are revealed on the company's web page. This may indicate that Rambøll does not provide this service yet.
- *Inimitability*: COWI may foster rare human resources in the sense that few companies supply the service, implying few specialists within the field of study. This strategic competence would also be difficult to imitate since the competence involves intangible imitation barriers including tacit knowledge based on experiences and interpersonal relations.
- *Organisational support*: Although COWI does not possess the competence of applying anthropologists is it not considered a problem for the company to support the implementation of the capability due to the company's various business units, one of which should be able to encompass the capability.

Based on the RBV the strategic capability comprising utilisation of anthropologists is considered a sustained competitive advantage with minor uncertainties regarding rarity, see Figure 6.5.

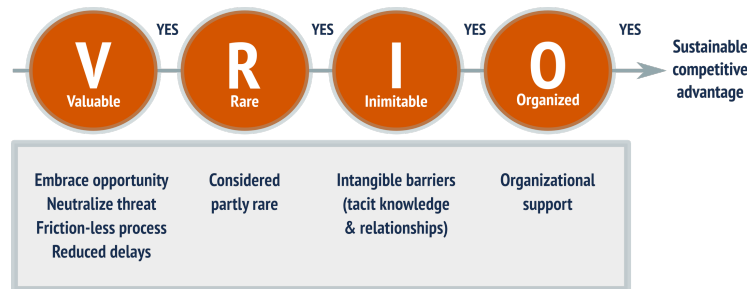


Figure 6.5: VRIO analysis of COWI's strategic capability.

Even if the capability isn't categorised as a "*sustainable competitive advantage*" it may turn into a direct disadvantage if other companies gain such competences.

COWI's current business model brands itself as being an engineering consultancy providing a unique 360° approach based on its world-class competencies within engineering, economics and environmental sciences. With the expansion of the recommended strategic competence, COWI would extend their existing business securing alignment with the company's current business model.

Sub-conclusion:

By applying the recommended strategic competence in collaboration with COWI's existing resources the company seeks to improve the overall customer experience by managing influential, challenging and at times provocative social aspects throughout the development of wind projects. The strategic direction embraces the need to manage community acceptance not only as part of the technocratic EIA regime but throughout the entire development process acknowledging affected communities as active rather than passive recipients. Identifying and meeting local needs goes beyond providing services that are defined a priori by the organisation. This involves the need for co-creation, which enables COWI to create added value for communities by engaging and interacting with them to "co-shape" their expectations throughout the entire phase (Harrington et al., 2013; Prahalad and Ramaswamy, 2000). Emphasising the importance of engaging with the communities in a dialogue will add value for both communities and COWI and may result in a learning process based on mutual understanding. Based on the VRIO framework the developed strategic direction seeks to create a sustainable competitive advantage for COWI.

6.4 Findings and recommendations

- Critical stakeholders who feel that they have not been involved or that their perspectives have not been considered, usually form a strong opposition and defensive behaviour towards RE initiatives that could prevent them from being implemented. A key requirement to reassuring the support of relevant stakeholders is to engage good stakeholder relations with blockers as well as supporters since these relations affect: 1) The level of trust-building; 2) Improve confidence between project developer and local communities; 3) Secures alignment of stakeholder expectations and; 4) Improves the developer's and consultant's reputation.
- The LBS case study illustrates an engineering consultancy prioritising the TR approach ruled by controlled one-way flows of information between the consultancy and the host communities. Since wind projects require not only technical expertise but also close collaboration, as shown by the stakeholder matrix and the PPS, it is considered valuable to combine the TR and the AC approach. Increasing COWI's understanding of the local communities and enhancing its capability to create a dialogue will improve mutual communication and secure alignment of stakeholder expectations. The platform which COWI currently uses to involve the communities could potentially be changed from the DAD and one-way communication strategy to more collaborative approaches such as workshops, field trips and round tables.
- The normal tendency for many residents is to react suspiciously towards changes in their landscapes and follow a territorial imperative to protect their places. This NIMBY mindset is very apparent in the LBS case study illustrating that acceptance of wind projects on a national level does not imply acceptance on the local level. There is no easy way to address strong place attachments and to encourage positive associations between turbines and places. One option is to take seriously the evidence that when developers take time to understand local identity and make efforts to respect and include these in wind energy projects they are more successful (Fast and Mabee, 2015). Achieve understanding for local identity is considered an issue which can be addressed by utilising anthropologists. The use of anthropologists is not only considered beneficial throughout environmental assessments but also in processes prior to the EIA. In future *tender projects* the DEA may consider hiring

COWI for anthropological investigations and analysis in order to increase their understanding of local communities before the initiation of wind projects. This will provide the developer with a better understanding of community identity and will, if COWI is chosen to conduct the EIA, improve the mutual trust between developer and communities due to COWI's recurring participation. With the new extended legislation for *open-door procedures*, giving communities bigger influence on future wind projects, it is perceived an incentive for project developers to reach the affected communities before projects are commenced. By increasing focus on branding the company's capabilities within anthropological investigations COWI may attract attention from: 1) First time developers who may be unaware of the controversial issues regarding local acceptance and; 2) Experienced developers taking initiatives to reassure a friction-less development process.

- Contrary to usual EIA processes, the DEA did not facilitate the first public meetings. Even though this incident is considered highly unusual it is recommended that COWI in the future clarifies towards future project developers, the importance of authorities taking responsibility for managing the public meetings.

Chapter 7

Future Work

7.1 Future research

- *Acknowledge local acceptance:* Although this thesis proposes anthropologists as a recommendation, one should also consider whether COWI would be willing to implement this suggestion since the company initially first needs to acknowledge the fact that local acceptance is a general problem. This in itself can be a challenge for an engineering company as the aspect includes social perspectives which may seem unaccustomed to an engineering mindset.
- *Creating a foundation for further research:* According to Yin (1994) single-case studies are applicable as foundations for larger and more comprehensive studies. This may validate the potential upsides of utilising anthropologists prior to and throughout the EIA process.
- *Investigate competitors:* Further research may aim at investigating the level of utilising anthropologists in competing organisations comprising Rambøll and NIRAS. This will create a better basis for COWI and for the company's further development of dynamic capabilities securing the ability to remain competitive.
- *Creating foreign opportunities:* Instead of limiting the use of anthropologists to the EIA process one could consider utilising the strategic capability on a larger scale. A country seeking opportunities within the offshore wind industry is Taiwan. In 2009 the country's government enacted a new law regarding the implementation of RE resulting in an ambition of 16% of the country's energy extraction coming from

RE sources. In order to meet the country's objective COWI has been asked to design 32 offshore foundations which must be constructed in 2019 becoming part of Taiwan's first offshore wind park producing 130 MW. The challenging project in Taiwan does not only require professional competency but also cultural understanding which COWI must become acquainted with. For this matter anthropologists may be useful in understanding cultural and societal perspectives securing the engineers' capability to communicate with and appear trustworthy towards the foreign project developer.

7.2 Research limitations

Even though case studies are increasingly used as a research strategy this research approach has received criticism which needs to be taken into account. Common concerns for using case studies is that they provide little basis for scientific generalisation (Yin, 1994). The application of the single case study, Little Belt South, can be argued to be a research limitation due to the lack of external validity. Perceptions and opinions can appear biased when using surveys and interviews as part of a research strategy (Sudman and Bradburn, 1986). This must be considered when interpreting the survey and the interviews and the therefrom derived recommendations. Since the developed survey received a total of 18 responses from a significantly larger statistical population it should be considered qualitative rather than quantitative.

Applying anthropologists as a strategic capability does not in itself secure the acceptance of all future host communities. Clearly, communities are pluralistic and the residents that are at central for these interactions are not homogeneous entities but rather heterogeneous groups of individuals embedded in a local context. For that reason, even the best proposals towards decreasing the gap between local communities and project developers will not be able to address each of the stakeholders' concerns since there is hardly anything in life that is universally supported.

Chapter 8

Conclusion

The integration of Renewable Energy (RE) technologies such as wind power in society is not a matter of simply applying science. Social factors have also proven to be crucial for the success of such technologies. Wind turbine projects are by no means exempt from this rule with several planned wind farms being cancelled due to community opposition (Sommer, Bjørnstad, and Frandsen, 2017). Understanding wind projects as socio-technical systems where social aspects are of equal importance as the technology itself are considered a necessity in order to successfully implement wind projects (Wolsink, 2012). In many instances wind energy as a technology is accepted by the public, however, local wind projects have proven to be a controversial issue since several projects have been met with territorial *'Not In My BackYard'* attitudes from local communities (Ellis and Ferraro, 2016). Even though local acceptance has gained much attention in recent years project developers and engineering consultancies tend to disregard the controversial but significant aspect.

In this thesis the aspect of community acceptance has been analysed through a single-case study of a Danish coastal wind farm project located in the southern Little Belt. Gathering of data comprised a survey and semi-structured interviews with specialists from COWI and the project developer from Sønderborg Forsyning. The study illustrated stark contrast in community attitudes from the two host communities comprising Assens and Sønderborg. Whereas Sønderborg generally seemed positive towards the project Assens demonstrated strong opposition.

Key stakeholders comprising the two communities, the authority (Danish Energy Agency) and the consultant (COWI), were assessed based on: 1) Their level of power over the

project, and 2) Their level of interest in the project. Based on the developed stakeholder matrix and the public participation spectrum developed by iap2 (2016) both supportive and opposing communities should be involved and collaborate with the project developer throughout decision-making processes. Disregarding key stakeholders may result in them forming strong opposition towards the RE initiative complicating the execution of the project. Identifying and meeting local expectations is considered essential in order to maintain and gain local acceptance. The project developer and the consultant should therefore take collaborative measures to understand the identity of host communities.

The analysis of the first public meetings revealed misaligned expectations between communities and consultant. Whereas the former expected *informative* answers to project specific matters the latter attempted to *involve* the communities. Due to the misaligned expectations the communities were left with dissatisfactory answers to their concerns which may have affected the level of trust in COWI and the developer negatively. Even though COWI attempted to involve the communities through the public meetings these are according to (Walker, Daniels, and Emborg, 2015) not considered an ideal approach for collaboration. COWI should increase focus towards communication strategies such as workshops or round tables which are inherently collaborative.

The case study also illustrated COWI prioritising the technical-regulatory (TR) approach rather than taking collaborative initiatives to communicate and interact with the local communities. Using the TR approach resulted in COWI communicating through one-way flows educating the communities and minimising the opportunity for community participation. However, based on the approach developed by Daniel and Cheng (2005) the level of TR must be counterbalanced by collaborative strategies involving the communities. The high level of support from Sønderborg is considered based on the community's prior introduction and involvement in the project. This acts as an incentive for applying collaborative measures. Increasing the consultant's understanding of local communities and seeking strategies to apply two-ways flows of information will improve the communication and secure alignment of expectations.

In order for COWI to acquire the capability of understanding local communities, this thesis recommends expanding COWI's current business model with the competence of applying

anthropologists. Anthropologists will provide an understanding of human behaviours based on societal and cultural aspects and can be applied throughout the EIA but also for anthropological investigations and analysis prior to project initiations.

The developed recommendations embrace the need to manage community acceptance in order to improve the acceptance of future wind project. The recommendations seek to reduce opposition from local communities by increasing community participation and involving communities in environmental decision-making. If the recommendations are applied they may be used to expand COWI's capabilities setting them apart from their competitors. These capabilities may be used to improve their current EIA but also allow them to introduce anthropological studies prior to the EIA.

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Appendix A

Data Gathering

A.1 Interviews

A.1.1 Interviewee information

Below a short description of the interviewees is provided. This provides an deeper understanding of the interviewees' backgrounds and their field of expertise.

- Anne Eiby (AE), project director within the department of water and nature, COWI. AE has more than 20 years of experience as an environmental counsellor and project manager. AE has been part of various EIA investigations throughout her career comprising tunnels, bridges, motorways, airports etc. For the last year AE has been part of the LBS project as project director from COWI.
- Lone Jensen (LJ), environmental consultant within the department of water and nature, COWI. LJ is affiliated to the LBS project and acts as an environmental consultant with increased focus on landscape and visualisations.
- Iben Nielsen (IN), senior project manager at Sønderborg Forsyning. IN manages the coordination of the LBS project in collaboration with COWI.
- Ulf Kjellerup (UK), senior legal advisor within the department of water and nature, COWI. UK has a broad work-related background with more than 15 years of experience within planning and environmental rights, administrative law (forvaltningsret), competition law (konkurrenceretten) and the procurement rules (udbudsregler). UK has specialised within the field of citizens' access to decision-making processes within EIA process. Practical experience is achieved through years of participation and management of various research projects in Denmark and other EU countries.

- Birgit Lindsnæs (BL), social anthropology within the department of economics and management, COWI. BL's area of expertise includes the social area comprising integration, refugees and human rights.
- Henrik Lysgaard (HL), chief project manager within the department of transportation and planning, COWI. HL holds responsibility within local planning and EIA processes and has gained experience as a facilitator of several public meetings.
- Mette Dalsgaard (MD), head of section and senior market director, COWI. MD's area of responsibility includes market strategy and management of the Danish market within water and environment.

A.1.2 Interview guide

The interviewees were given a short introduction which included the following aspects: Thank the interviewee for participating, introduce myself, clarify the purpose of the interview, define the situation for the interviewee (confidentiality, estimated time of recording) and ask if the interviewee has any questions before the interview.

<i>Indicators</i>	<i>Interview Question</i>
-	What is your/COWI's job in connection to the LBS project? (<i>Hvad er din/COWIs rolle ifm. LBS projektet?</i>)
-	How far in the EIA process is the LBS project currently? (<i>Hvor i VVM forløbet befinder projektet sig på nuværende tidspunkt?</i>)
Community participation	How are the local communities (Sønderborg and Assens) involved in the EIA process? (<i>Hvordan inkluderes lokalsamfundet (herunder Nordborg og Assens) i VVM forløbet?</i>)
Community participation	Do you think the local communities feel involved and included in the decision making? Why? Why not? (<i>Tror du, at de lokale føler sig involveret i beslutningstagningen? Hvorfor? Hvorfor ikke?</i>)
Community acceptance/ Network stability	How was the atmosphere during the first public meeting? Was there an atmospheric difference between Sønderborg and Assens? (<i>Hvordan var stemningen under det første borgermøde? Var der en forskel på Sønderborg versus Assens?</i>)
Community acceptance	What do you think are the locals' greatest fears/dissatisfaction/concerns regarding the project? (<i>Hvad mener du, er de lokale borgeres største bekymringer/frygt ift. projektet?</i>)
Community participation	Do you think these dissatisfaction's and concerns are being managed/handled through the current EIA process? Why? Why not? (<i>Mener du, at disse bekymringer bliver håndteret i løbet af den nuværende VVM proces? Hvorfor? Hvorfor ikke?</i>)
Community participation/ Network stability	How are the uncertainties managed? (<i>Hvordan håndteres disse bekymringer/usikkerheder?</i>)
Network stability	Were you able to provide satisfactory answers? Why? Why not? (<i>Var du (COWI) i stand til at besvare deres spørgsmål samt levere tilfredsstillende svar?</i>)
Community participation	Do you think it would be better to involve the local communities earlier in the EIA process? (<i>Mener du, at de lokale bør inddrages tidligere i VVM processen?</i>)
Community participation	Do you think, the local communities should be involved differently? (<i>Mener du, at borgernes skal inddrages på en anderledes måde?</i>) Mener du at det ville gavne borgerne hvis de blev inddraget på en anderledes måde? Ville det også gavne COWI?
Community participation	Have you experienced a change in attitude towards the management of local communities over the past years? (<i>Har du oplevet en ændret tilgang ifm. håndtering af lokal modstand og/-eller borgerinddragelse, i løbet af de sidste år?</i>)
Community participation	Do you plan on doing things differently at the second public meeting? (<i>Har du/COWI tænkt jer at foretage nogle ændringer ifm. det andet borgermøde?</i>)

Table A.1: Interview guide - Anne Eiby, COWI.

APPENDIX A. DATA GATHERING

<i>Indicators</i>	<i>Interview Question</i>
-	What is your job in connection to the LBS project? (Hvad er din rolle ifm. LBS projektet?)
Community participation/ Community acceptance	What approaches/tools have been utilized in order to motivate and engage the citizens of Assens since the LBS project is originally a Sønderborg driven project? (Hvilke værktøjer/fremgangsmåder er der blevet anvendt for at motivere og engagere Assensborgere i Lillebælt Syd projektet, da dette oprindeligt er et Sønderborg-drevet initiativ?)
Community participation	Do you think the local communities feel involved and included in the decision making? Why? Why not? (Tror du, at de lokale føler sig involveret i beslutningstagningen? Hvorfor? Hvorfor ikke?)
Network stability	Were you able to provide satisfactory answers? Why? Why not? (Var du (SF) i stand til at besvare deres spørgsmål samt levere tilfredsstillende svar?)
Community acceptance/ Network stability	How was the atmosphere during the first public meeting? Was there an atmospheric difference between Sønderborg and Assens? (Hvordan var stemningen under det første borgermøde? Var der en forskel på Sønderborg versus Assens?)
Community participation	It is noticed that the project is meet with great resistance from Assens. How do you accommodate the resistance? (Det ses at projektet møder stærk modstand fra Assens. Gøres der noget fra jeres side ift. at imødekomme denne modstand?)
Community acceptance	Did you expect the response which the project has achieved? (Havde i forventet den respons som projektet har modtaget?)
Network stability	How does the collaboration with ProjectZero and COWI take place? (Hvordan foregår samarbejdet med ProjectZero og COWI?)

Table A.2: Interview guide - Iben Nielsen, Sønderborg Forsyning.

<i>Indicators</i>	<i>Interview Question</i>
-	What is your job description at COWI? (Hvilken stilling har du i COWI?)
-	What does the job description entail? (Hvad indebærer stillingen?)
Community participation	How would you define public involvement in EIA processes? (Hvordan definerer du begrebet borgerinddragelse i VVM-processer?)
Community participation	What is your personal experience with the aspect of public involvement/decision-making throughout EIA processes? (Hvad er, din personlige erfaring med borgerinddragelse og borgeres beslutningstagning i VVM-processer?)
Community participation/ Network stability	What is, in your opinion optimal public involvement? (Hvad er, efter din mening, optimal borgerinddragelse?)
Community participation/ Community acceptance	What are the main issues/challenges when discussing the aspect of public involvement and locals' access to decision-making? (Hvad oplever du, som værende generelle udfordringer ift. borgerinddragelse og lokale borgeres adgang til beslutninger?)
Community participation	Have you experienced a changed approach towards the management of public involvement? (Har du oplevet en ændret tilgang til håndteringen af borgerinddragelse i VVM-processer generelt?)
Community participation/ Community acceptance	Do you think, it would be better to involve the public earlier in the EIA process? (Mener du, at du kunne gavne at inddrage borgerne tidligere i VVM-processen?)
Community acceptance	Would you recommend changes to the current process of managing public involvement (including public meetings)? (Har du forslag til forbedringer ift. håndtering af borgerinddragelsesaspektet (herunder også de obligatoriske borgermøder?))
Community participation	How much freedom does COWI have, to changing the aspect of public involvement during the EIA process (with regard to law regulations)? (Hvor meget frihed har COWI til at ændre deres håndtering af borgerinddragelsesaspektet i VVM-processer ift. lovmæssige foranstaltninger?)
-	Are there ways in which COWI could differentiate themselves from competitors delivering the same service? Or it is not possible due to law regulations? (Er der muligheder for at COWI kan differentiere sig fra deres konkurrenter (Rambøll) som leverer samme service ift. VVM-processer – eller er dette ikke muligt pga. lovmæssige foranstaltninger?)

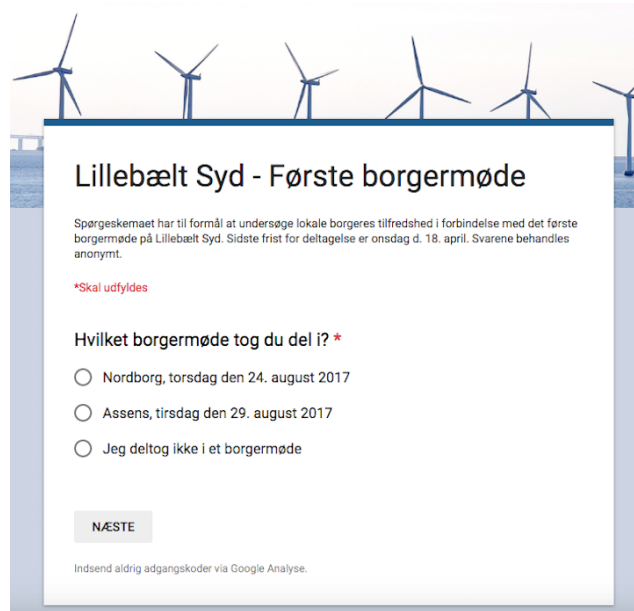
Table A.3: Interview guide - Ulf Kjellerup, COWI.

<i>Indicators</i>	<i>Interview Question</i>
-	What is your job description at COWI? (Hvad er din stilling i COWI og hvilke typiske arbejdsopgaver har du?)
Community participation	What is your experience on the subject of local resistance and public involvement? (Hvad er din/dine oplevelser på området inden for lokal modstand og borgerinddragelse?)
Community acceptance	When does COWI make use of anthropologists for external jobs? (Hvornår gøres der brug af antropologer til kundeopgaver (eksterne opgaver?)
-	Who decides when to apply anthropologists and when these can be excluded? (Hvem afgør hvornår der skal anvendes antropologer og hvornår disse kan udelades?)
Community acceptance	What do you think is achieved by applying anthropologists on external projects? (Hvad mener du, at der opnås ved anvendelse af antropologer på kundeprojekter?)
Community acceptance/ Network stability/ Community participation	Do you think all projects could benefit from applying anthropological knowledge? (Mener du, at alle projekter kunne have gavn af antropologer?)

Table A.4: Interview guide - Birgit Lindsnæs, Lone Hamborg Jensen, Henrik Lysgaard and Mette Dalsgaard, COWI.

A.2 Survey

A.2.1 Survey design



Lillebælt Syd - Første borgermøde

Spørgeskemaet har til formål at undersøge lokale borgeres tilfredshed i forbindelse med det første borgermøde på Lillebælt Syd. Sidste frist for deltagelse er onsdag d. 18. april. Svarene behandles anonymt.

**Skal udfyldes*

Hvilket borgermøde tog du del i? *

☐ Nordborg, torsdag den 24. august 2017

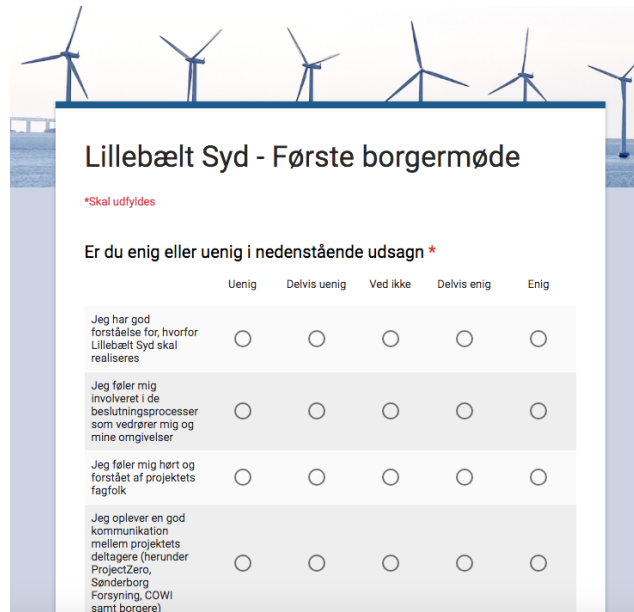
☐ Assens, tirsdag den 29. august 2017

☐ Jeg deltog ikke i et borgermøde

NÆSTE

Indsend aldrig adgangskoder via Google Analyse.

Figure A.1: Survey part I - Initial question.



Lillebælt Syd - Første borgermøde

**Skal udfyldes*

Er du enig eller uenig i nedenstående udsagn *

	Uenig	Delvis uenig	Ved ikke	Delvis enig	Enig
Jeg har god forståelse for, hvorfor Lillebælt Syd skal realiseres	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jeg føler mig involveret i de beslutningsprocesser som vedrører mig og mine omgivelser	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jeg føler mig hørt og forstået af projektets fagfolk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jeg oplever en god kommunikation mellem projektets deltagere (herunder ProjectZero, Sønderborg Forsyning, COWI samt borgere)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure A.2: Survey part II - Questions 1-4.

Jeg har forståelse for, hvordan projektet kommer til at påvirke mig og mine omgivelser, positivt såvel som negativt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jeg oplever, at miljøundersøgelserne fokuserer på områder, der har betydning for mig	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Formidling af information foregår på et niveau, som er forståeligt for andre end fagfolk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jeg har fået en bedre forståelse for projektet efter det første borgermøde	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jeg føler at borgerne inddrages i projektets forløb (herunder planlægning og udførelse)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mine bekymringer er aftaget efter det første borgermøde	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jeg har tænkt mig at deltage i det andet borgermøde	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure A.3: Survey part III - Questions 5-11.

Lillebælt Syd - Første borgermøde

*Skal udfyldes

Hvorfor deltog du ikke i borgermødet? *

☐ Jeg havde ikke hørt om det

☐ Jeg havde ikke tid

☐ Jeg havde ikke lyst

☐ Andet: _____

Hvad kunne få dig til at deltage i fremtidige borgermøder?

Dit svar _____

Har du andre kommentarer?

Dit svar _____

Figure A.4: Survey part III - Non-attending participants.

A.2.2 Survey questions and results

Below the developed survey along with its: 1) survey questions; 2) indicators; 3) interconnection to the VVM_{plus} recommendations and 4) the total weighting is outlined.

Indicator	VVMplus	Survey questions	Uening	Delvis uening	Ved ikke	Assens Delvis enig	Sønderborg Enig	-2 Uening	-1 Delvis ueni	0 Ved ikke	1 Delvis enig	2 Enig	
Community Acceptance	6	Mine bekymringer er aflaget efter det første borgermøde	●●●●●	●●●			●	4	2	1	0	1	-1,000
Network stability	8	Jeg føler mig hørt og forstået af projektets fagfolk	●●●●●	●●		●	●	4	2	0	1	1	-0,875
Community Participation	3	Jeg føler mig involveret i de beslutningsprocesser som vedrører mig og mine omgivelser	●●●●●			●	●●	5	0	0	1	2	-0,625
Community Participation	5	Jeg føler at borgerne inddrages i projektets forløb (herunder planlægning og udførelse)	●●●●●	●	●		●●	4	1	1	0	2	-0,625
Community Acceptance	1	Jeg har god forståelse for, hvorfor Lillebælt Syd skal realiseres	●●●●●	●		●	●●	4	1	0	1	2	-0,500
Network stability	10	Jeg oplever en god kommunikation mellem projektets deltagere (herunder ProjectZero, Sønderborg Forsyning,	●●●●●		●●		●●	4	0	2	0	2	-0,500
Network stability	7	Jeg har forståelse for, hvordan projektet kommer til at påvirke mig og mine omgivelser, positivt såvel som negativt	●●	●●●			●●●●	2	3	0	0	3	-0,125
Community Acceptance	4	Jeg har fået en bedre forståelse for projektet efter det første borgermøde	●●●		●	●●	●●	3	0	1	2	2	0,000
Network stability	11	Formidling af information foregår på et niveau, som er forståeligt for andre end fagfolk		●●●●●	●	●	●●	0	4	1	1	2	0,125
Community Participation	2	Jeg oplever, at miljøundersøgelserne fokuserer på områder, der har betydning for mig	●●			●●	●●●●	2	0	0	2	4	0,750
Community Participation	9	Jeg har tænkt mig at deltage i det andet borgermøde	●		●	●	●●●●●	1	0	1	1	5	1,125

Table A.5: An overview of the survey questions, their interconnection to the VVM_{plus} recommendations, indicators and the final weighting.

A.3 VVM_{plus} recommendations

An overview of the 11 recommendations developed by the research project VVM_{plus}:







Indicator	VVM _{plus} recommendations	
Community acceptance	1. Include social consequences in the scope	
Community acceptance	2. Conduct a baseline study	
Community participation	3. Include social impacts on planning level	
Community acceptance	4. Focus on local advantages	
Community participation	5. Use the citizens as a starting point	
Community acceptance	6. Acknowledge and reduce uncertainty	
Network stability	7. Describe the whole project	
Network stability	8. Create transparency of local advantages and disadvantages	
Community participation	9. Strengthen citizen participation	
Network stability	10. Develop a united communication plan	
Network stability	11. Strengthen the non-technical resume	

Figure A.5: The 11 recommendations developed by the VVM_{plus} research project as well as their interconnection to the developed indicators.

Appendix B

Timetable

Below the time tables for the project have been outlined. The first table describes the initial time table developed prior to project execution. The second table describes the actual time table for the project. The main differences include: 1) The duration of each phase has taken longer than first anticipated. This has resulted in a more compressed table giving the opportunity to run phases concurrently; 2) The utilisation of iterations has resulted in each phase being repeated several times securing optimal readability and consistency.

B.1 Initial time table

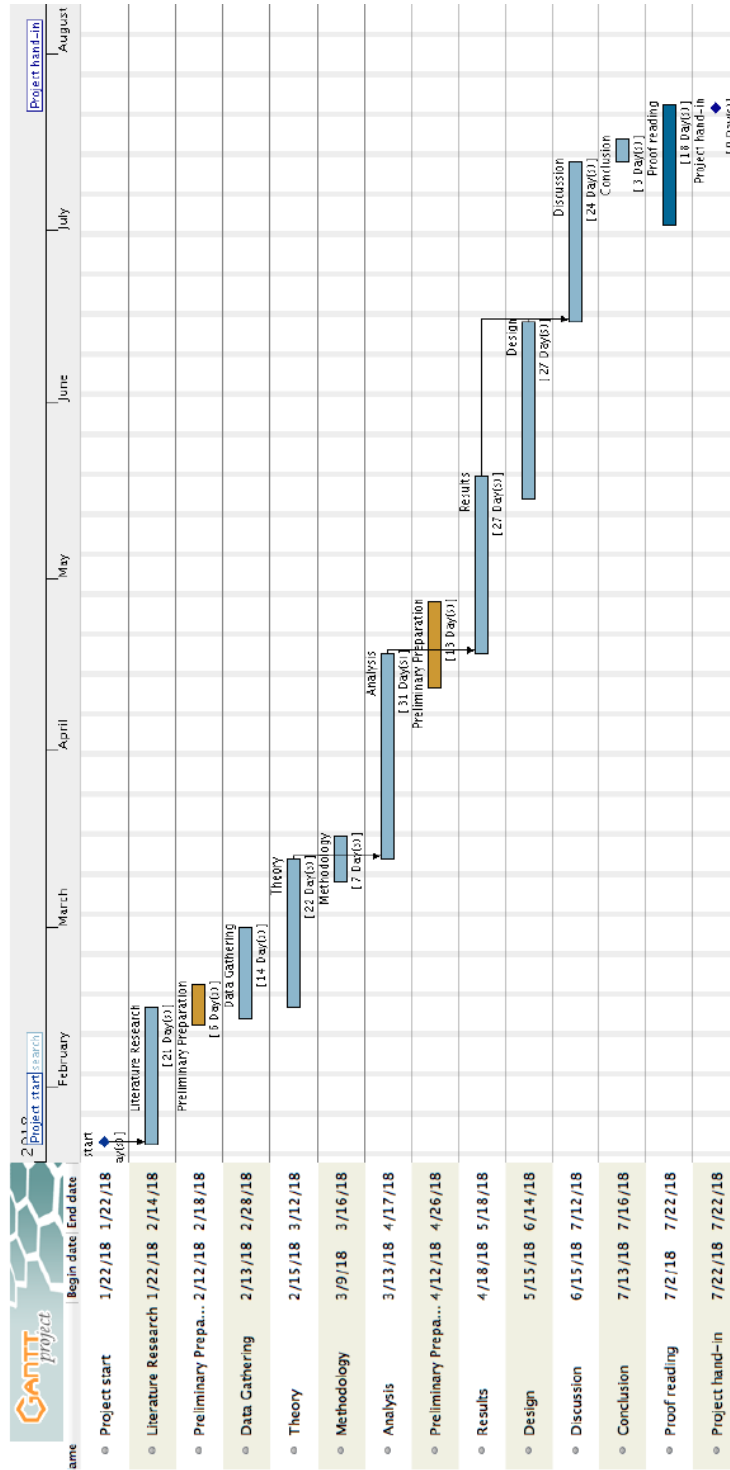


Table B.1: Initial time table.

B.2 Actual time table

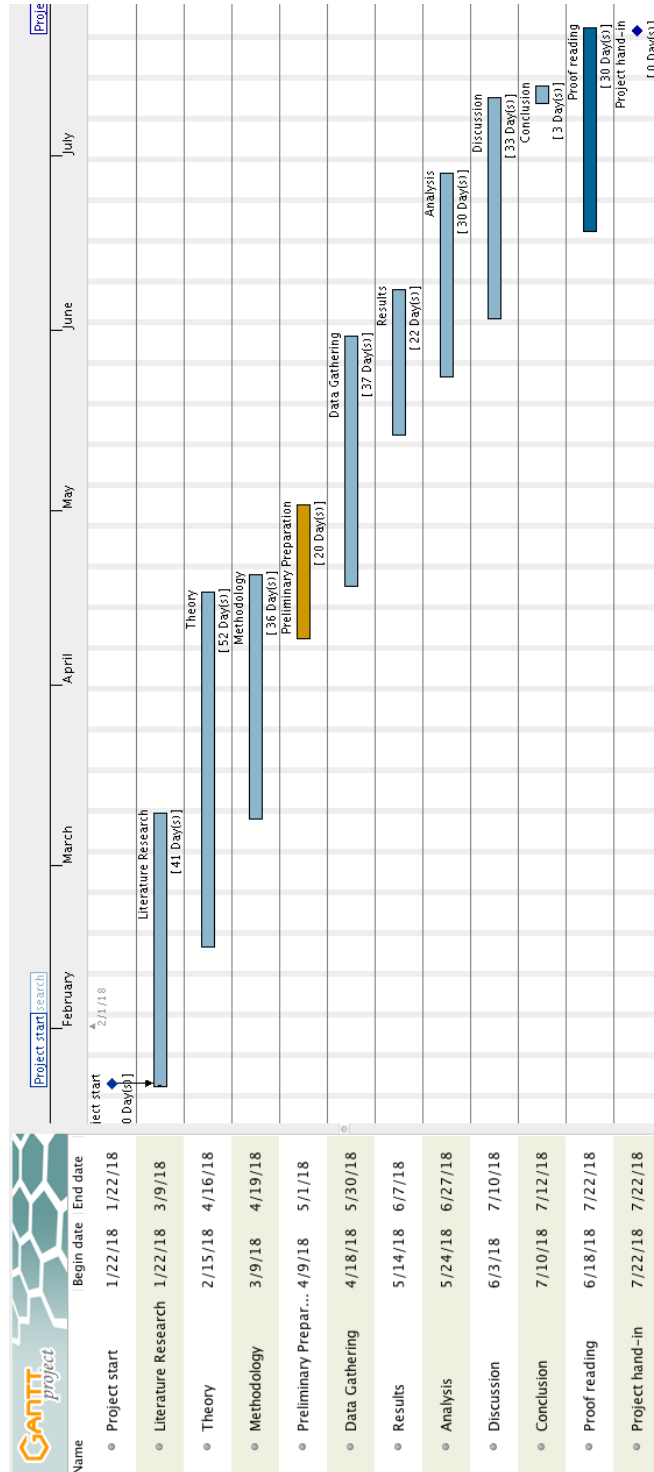


Table B.2: Actual time table.