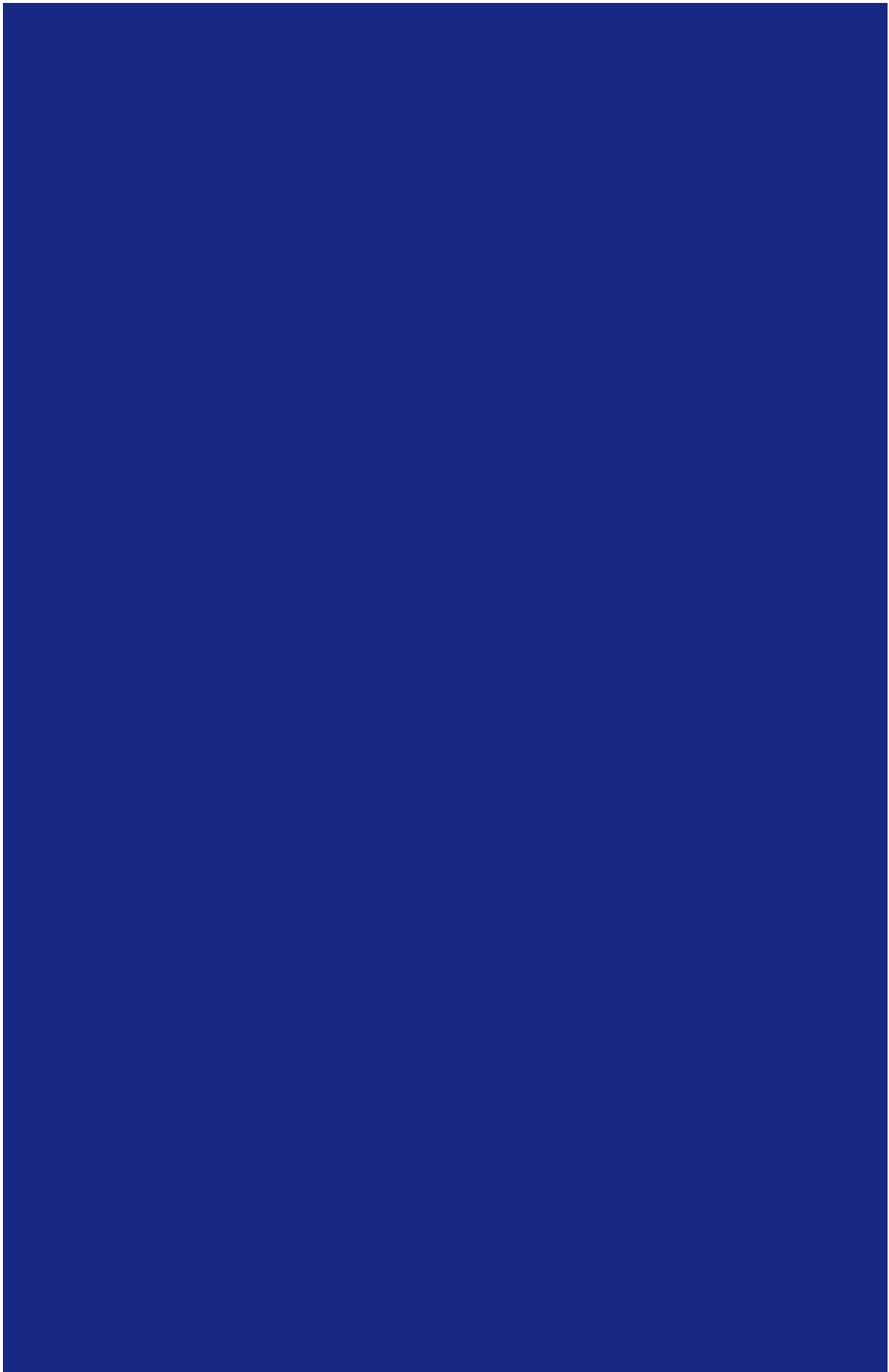


How the Environmental Impact Assessment and the Public Debate interact

An Event Sequence Analysis on Offshore Wind Farm Gemini

Master Thesis Research
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Marloes Caroline Hurman,
Faculty of Technology, Policy and Management
Delft University of Technology, Jaffalaan 5, 2628BX, Delft
Student Number: 4059727
Mail: m.c.hurman@student.tudelft.nl



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Date: July 15th, 2017

Author:

Name: Marloes Caroline Hurman

Student number: 4059727

Education: Master Systems Engineering, Policy Analysis and Management
Delft University of Technology
Section: Energy and Industry

Faculty: Technology, Policy & Management

Email: m.c.hurman@student.tudelft.nl

Telephone: +31 (0)6 14 02 79 76

Graduation Committee:

Chairman: Prof. dr. R.W. Künneke

Section: Economics of Infrastructures, TU Delft

1st supervisor: Dr. ir. E.H.W.J. Cuppen

Section: Policy, Organisation, Law and Gaming, TU Delft

2nd supervisor: Dr. A.F. Correljé

Section: Economics of Infrastructures, TU Delft

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General Summary

This thesis will study the interaction of the Environmental Impact Assessment and the Public Debate in offshore wind projects. Offshore wind energy has a heightened profile among both policy-makers and the general public. Subsequently, offshore wind energy as an enterprise is in every case subjected to scrutiny, research and assessment to optimize procedures, limit costs and risks, and to be able to foresee and manage impact. One of the first and crucial questions a scientific approach towards the deployment of offshore energy can help answer, is a seemingly simple one: where to locate offshore wind turbines? The practical implication of any offshore initiative proves over and over again that this question cannot be answered without difficulty because opinions and interests among stakeholders are incredibly diverse. The Environmental Impact Assessment (EIA) is one of the tools that provide policy-makers with information to support informed decision-making by looking at possible impacts of different alternatives. The aim of the EIA is to contribute to environmental awareness and protection during the decision-making phase of projects by requiring an *ex ante* evaluation of probable effects. By doing so, it attempts to objectively assess public values and take these into consideration. The values taken into consideration in the EIAs and the values emerging among the public can be substantially different. In projects like these, there is some form of debate amongst the public, where values amongst the project are formed and reformed. Besides, it is recognized that the EIA study is also used by the public and by that becoming part of public debate. Therefore, there is interaction between the EIA and the public debate.

Whereas much research has been done on either the EIA or the public debate, few studies address the interaction between the two. When this interaction is better understood, decision-makers can anticipate more, which could result in less opposition during the decision-making phase of a project. The leading question for this research is the following: *“How do the Environmental Impact Assessment and the Public Debate interact in decision-making on offshore wind projects?”*. To answer this question, the following sub-questions have been formulated:

1. How can the interaction between the EIA and the Public Debate be better understood theoretically?
2. Which method creates insight in the interaction between the EIA and the Public Debate over time and which additional benefit(s) does this method provide?
3. How did the Gemini project evolve over time and which actions were important and how did they influence the process?
4. Which patterns can be identified in the interaction between the EIA and the Public Debate and what mechanism is behind the occurrence of such patterns for Gemini?
5. How can decision-makers better anticipate on the interaction between the EIA and the Public Debate?

In this research, the interaction between the EIA and the public debate is described as a process. A process is dynamic and changes over time. Due to interaction and communication among groups the relation between the EIA and the public debate can be described as dynamic and changes over time. In this study, a process is defined as a development of event sequences. A process is not a fixed entity and may evolve as a result of certain events (theoretically significant occurrences) as it develops. An event may include a bad year, a merger, or a decision and are the core of clarifying the process. By using process theory, sequences of events that lead to a certain outcome can be analysed and help understanding patterns in events to develop a process theory.

It is required, that empirical evidence about events is matched with theoretically derived process patterns, or a conceptual model. The conceptual model, Figure 1, in this research is based upon the

framework of Walker et al. (2011), representing the complex combination of process, dynamics and interaction. The figure demonstrates the main interaction between the EIA and public debate. One of the premises from which the analysis at hand departs, is that the expectations and actions of stakeholders go a long way in explaining the particular dynamics of the process under study. In addition, this conceptual model also reifies and makes clear the contextual influence on the process. Different studies emphasize that the context can influence the EIA and the public debate. Furthermore, the context has a dynamic character as well. Including the contextual influences in the study helps to better understand the interaction between the EIA and public debate.

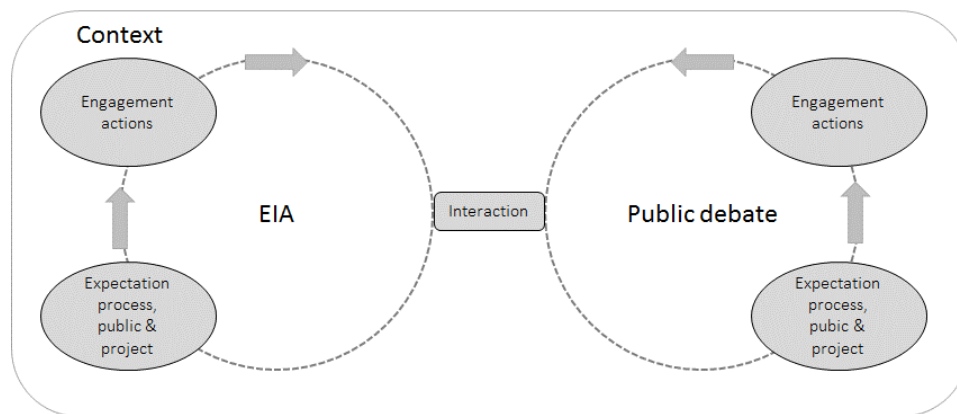


Figure 1 Conceptual model representing the interaction between the EIA and the Public Debate based on the literature

Method

The main method selected for this study, based on the process research perspective, is Event Sequences Analysis (ESA). ESA defines events, clarifies the logical relation among events and shows in what way an individual event influences further events. It is therefore a helpful tool to study how patterns arise, define the dependent variables (the mechanisms) and interpret these patterns for the future.

An in-depth study has been carried out for this case, Gemini, a Dutch offshore wind farm. For Gemini, an event sequence dataset was created. The process data was gathered from news items from the following data bases: LexisNexis, Energeia and Howards Home. The longitudinal data include empirical observations, described as incidents. These incidents are classified according to the conceptual model and coded as events. Links between events are identified, giving an overall event sequence of Gemini.

Results

The results give an insight into the interaction between the EIA and the public debate by identifying the events, event sequences, patterns and the driving mechanism behind the patterns. The result of this research is composed as follows. First, 83 events were identified for Gemini with the ESA method. These events were then placed in an event map, describing how the project evolved over time. Figure 2 highlights the main events and actions that were important for this process.

The ESA map displayed different event sequences of Gemini. The events were placed within the conceptual model, patterns were identified, and the findings analysed against the theory. Subsequently, the patterns were analysed to find the driving mechanism behind the pattern. The mechanisms that were identified are “place and community”, “local policy”, “national policy”, “economic and business” and “social-economic system”, “stakeholder changes” and “level of stakeholder involvement”.

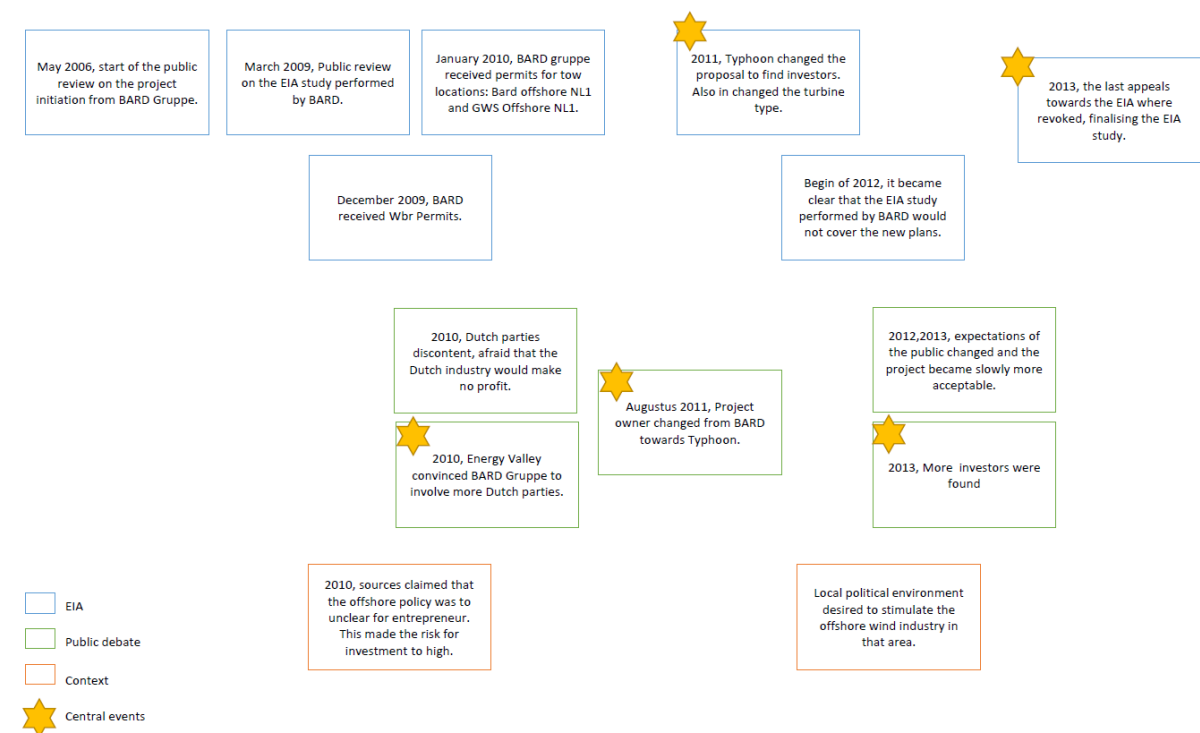


Figure 2 gives an overview of Gemini. Blue boxes are events classified as EIA. Green boxes are event classified as Public Debate and red boxes as context events. A star indicates a central event.

Conclusions

The most important conclusions of this research have bearing on the Event Sequence Analysis method and the interaction between the EIA and the public debate with their underlying mechanisms, represented in a theoretical model.

The ESA method is not frequently used, although this research showed that it has an added value especially for a process research. It is a suitable method to reconstruct the process in detail over time, gives insight in the complex unit and makes it possible to identify patterns among events. In addition to that, theoretically founded propositions about certain roles or mechanisms concerning the process can be investigated with the ESA. Lastly, ESA creates insight in the influence of the time between when an event happens and its resulting (re)action.

The analysis of the interaction between the EIA and public debate identified one common pattern; the linear sequence. This sequence describes how first expectations of the process, public or project are formed by stakeholders. The stakeholders form engagement actions based on those expectations, which can result in new or adjusted expectations by stakeholders. This linear sequence is the basis of the theoretical model. This research shows that the linear sequence is quite predictable, and decision-makers can anticipate on such sequences. The mechanisms that drive the patterns are less predictable, because it depends on the nature of the mechanism as to how it will influence the expectations of the stakeholder. However, when decision-makers identify a mechanism at an early stage they can anticipate on such mechanism. Consequently, decision-makers may be able to prevent an undesirable pattern or activate a desirable pattern. For instance, when decision-makers see that stakeholders might fear a loss of income, they can actively anticipate on such fear.

A variety of mechanisms has been identified. These can be divided into contextual and non-contextual mechanisms. This research proved for two non-contextual mechanisms to be important and therefore need including in the theoretical model; the stakeholders' position and the timing of stakeholder

involvement. Stakeholders switching position or entering or exiting the process can be variables that influence patterns. For example, research showed that different patterns were influenced by the fact that a stakeholder holds expectations which they take with them when they enter or exit a process. In addition to that, there is the timing of when a stakeholder becomes actively involved in the interaction. When for example a stakeholder from the public is involved early in the process, they can express their core values and opinions accordingly. Research showed that this can affect process patterns. Concluding, the moment of interaction between the EIA and the public debate is a variable that can influence patterns.

The research at hand has made clear that the contextual mechanisms mainly influenced a part of the process; either the interaction between EIA and public debate, the EIA or the public debate. The dimension 'local policy, 'place and community' and 'social-economic system' mainly influenced the expectations of the public debate, whereas the dimensions 'economic & business' and 'national policy' mainly influenced EIA. Additionally, this research has also made clear that one further contextual mechanism, usually neglected in the literature, influenced the rate of interaction between the EIA and the public debate. This contextual mechanism may be described as 'problems and disasters in other projects'. From interviews amongst EIA experts it became clear that it for one effects the EIA contents. But it also influences the manner in which decision-makers assess the importance of the interaction between the EIA and the public debate. It can affect the way they want the interaction to be between the EIA and the public debate or whether the interaction should be increased or decreased. Since the 'problems and disasters' in other projects are in the past, we call this context mechanism "historical context factor". This factor mainly influences the interaction rate between the EIA and the public debate.

All these conclusions were summarized and displayed in one model, a representation of the interaction between EIA and the public debate during processes of decision-making for offshore wind projects.

Recommendations and Discussion

From this research a few practical and scientific recommendations can be drawn. One practical recommendation for decision-makers is to anticipate mechanisms that can drive patterns. By recognizing potential mechanisms that can trigger a pattern of events can be of importance for decision-makers. When decision-makers do so and do it early they might avoid a pattern that could delay the process.

Another practical recommendation is the early and active participation of the public stakeholders as from interviews with experts, it can be suggested that active participation at an early stage of the process causes a less intense public debate or controversy. Especially given the fact that opponents have the opportunity to express their core values at the start of the project. By letting stakeholders express their core values at an early stage of the process, it offers room to protect their core values or at least take them into account. This adds in creating more goodwill among the stakeholders as far as project and process is concerned. Research indicated that this reduces objections, debates, and controversies.

A third practical recommendation can be made regarding the contents of the EIA. Offshore wind is a rapidly changing industry, where it becomes more common for technologies to change faster than the overall duration of an EIA study. This fact was also seen in the Gemini project where the technology change was partly triggered due to the struggle to find investors, because the original plan did not use the latest techniques. This could have been avoided by including more and broader technical options in the EIA. This way it is more likely that the expectations of external stakeholders are met.

As a final point, a project owner ought to deliberately invest in additional subprojects concentrating on the public. The research indicated that this can help improve the image of the main project and that of the project owner. One example was apparent in the “Nordsee Ost” project where they built new houses on the island nearby, which were matching the cultural landscape. This resulted in a positive reception by the public. With a relatively small investment for a project owner, a significant increase in goodwill can be achieved among the public (less debate).

Supplementary research is required on the ESA method. One question that may be asked is “How to assess qualitatively the importance of an event in the ESA?” With ESA, the events and the sequences are identified and an event map is created. From this, some key events were identified, however when they were mentioned in interviews it showed that, even when an event has a central position in the process, a stakeholder does not necessarily view this as important. In addition, one could argue that this research is too time-consuming, demanding extensive data collection covering a substantial time period.

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1

Introduction

1. Introduction

Wind energy is a renewable energy source, which is seen by many governments as an important way to reach their renewable energy target. Accordingly, countries invest in the purchase and placement of wind turbines. But where to locate these wind turbines? This is a question that governments and project initiators are facing over and over again. Answering this question is not straightforward. Various aspects - for instance cost, environmental impact, yield, - and different actors - for instance the public, companies, governance - need to be considered and taken into account. Numerous considerations need to be judged, which makes it an incredibly difficult task for decision-makers.

To illustrate this difficulty, we can look at Friesland, a province in the Netherlands. Friesland needs to meet a target of generated MW renewable energy by wind, a target set by the national government. However, the local government is responsible for finding a proper location for the turbines. A difficult task, because the opinions about it are still highly divided. Articles addressing the matter appear in the local newspaper on a regular basis, providing an insightful overview of the discussion, the opinions and preferences that are entertained. Articles referred to the Afsluitdijk, the IJsselmeer and the main land as possible locations for a wind park. A few of the values that were pointed out in the articles were: economic benefit, energy supply, cost, tourism, recreation, environmental harm, harm on animals, view and preservation of landscape (Leeuwarder Courant, 22-10-14). The different opinions formed on these values need to be taken into consideration and judged by the governments when deciding on the location. The debate in Friesland now begins to harm the community, because it even creates friction among neighbours who have different perspectives. This raises the question how policymakers can consider the range of public values within their decision-making process? Is it even possible?

The aim of the research

Finding a location that is as contested as possible is not the only concern of local governments. Energy projects need to reach a consensus on a high number of other trade-offs, such as for example benefits, cost and risk in addition to a high degree of uncertainty of the possible effect and impact of those trade-offs (Axsen, 2014). Formal assessment methods, like an Environmental Impact Assessment (EIA), provide policy-makers with information to support decision-making (Stidham & Simon-Brown, 2011). For example, the possible impact on the environment, health, cost and more. The methods determining the possible impacts may lead to controversy (Stidham & Simon-Brown, 2011).

Rationally evaluating the trade-offs is difficult for experts, let alone the general public, which gives rise to controversies or at least debates (Axsen, 2014). In a debate, people provide an assessment in a more informal way, of a project. Such debates, classified as an informal assessment, can influence political decision-making. Formal assessment methods, like EIA, do and obviously can not eliminate or exclude the influence of the public debate on a project. Rather, there is interaction between the debate and the assessments process. For instance, EIA may lead to controversy itself because e.g. the scope or timing is contested. However, this interaction between the EIA and the public debate is not very well understood and policy makers struggle with this during the decision-making processes. It can be difficult for them to understand and anticipate on the different perceptions of the general public and often they do not know from which side in the discussion they should anticipate support, and from which side opposition. In order to anticipate on the perceptions, decision-makers first need to understand the interaction between the formal assessment, in this research we focus on the EIA, and the public debate, informal assessment. Knowledge on the interaction can then be used by decision-makers to change or adjust their actions and by that better anticipate on this complex process of interaction and consequently improve the decision-making process.

In this chapter, section 1.1 gives more background information on the Environmental Impact Assessment and section 1.2 specifies on the actual meaning of the term public debate. Section 1.3 explains why offshore wind has been selected to study the interaction between the EIA and the public debate. Subsequently, it is argued why there is a need for more insight in the interaction between the EIA and the public debate in section 1.4 followed by the research questions in section 1.5. This chapter ends with the research justification in section 1.6 and research approach in section 1.7.

1.1 The Environmental Impact Assessment

When wind farms are constructed, it is vital to take the impact of the project in consideration. This can be done in a structured way; a formal assessment (FA). Formal assessment methods are set by legally established governance, to assess for instance the (potential) environmental impacts of a project. These methods, like the EIA, formulate practices, impacts, beliefs and values to support policy-makers during the decision phase of a project.

The Environmental Impact Assessment (EIA) is established as result of the Environmental Impact Assessment Directive (EC:85/337/EEC-EIA 2009), which was adopted by the European Commission in 1985 (European Commission, 2001; Vanderhaegen & Muro, 2005). This directive states that environmental consequences should be identified before the final decision on a project is made (Commissierner, 2015). Performing an EIA study is a systematic process prescribed to evaluate a wide range of public and private initiatives to enable a government to considerate the impact of the various options in a project on the environment in order to decide whether or not a proposal should be given approval to proceed (Canter, 1977).

The European Union Directive (2011/92/EU), requires offshore wind developers to carry out an Environmental Impact Assessment (EIA), including a mitigation hierarchy and an adverse effects analysis on ecosystems and human activities (Vaissiere et al., 2014). The directive 2011/92/EU has two amendments and is a codification of the 85/377/EEC directive. All Member States were required to implement the 85/377/EEC directive before March 7, 1988.

The aim of the EIA is to contribute to the environmental awareness in the decision-making phase and to protect the environment by requiring an evaluation of the effects beforehand. It is not only intended to prevent decisions with unacceptable environmental impact, but also to promote an early incorporation of environmental values (Jay, Jones, Slinn, & Wood, 2007), because (major) projects are likely to affect the environment significantly (Leknes, 2001S; Runhaar, van Laerhoven, Driessen, & Arts, 2013). Therefore, it is important to evaluate the effects and take them into consideration prior to project execution (Leknes, 2001S; Runhaar, van Laerhoven, Driessen, & Arts, 2013).

Beside the environmental impact, an EIA-study intends to asses public values objectively and predetermine values such as safety, health and economy (Hertin et al., 2009). When visions, ideas or values of affected individuals or groups have not been sufficiently represented within the assessment, there is a chance that opposition will arise, which will hamper the implementation of the decisions. In order to increase the legitimacy and acceptance of the EIA process and its outcome, relevant values and interests need to be taken into account.

There is a widespread consensus among scholars that public participation is key to effective environmental impact assessment (Glucker, Driessen, Kolhoff, & Runhaar, 2013). Nonetheless, there is little consensus concerning meaning, adequate scope nor objectives of public participation. To increase the legitimacy of the project decision and project implementation, it is crucial to increase public involvement (Glucker et al., 2013).

Many countries have implemented EIA regulations. Although it has been adapted to different contexts and circumstances, its basis intention and core elements are widely agreed upon (Jay et al., 2007). Most Western countries have incorporated the use of EIA in their national environmental legislation. In non-Western countries, projects are mainly financed by the World Bank. Interbank regulation, called “IFC Performance Standards (IFC PS)”, are mandatory when EIA’s (also mandatory) are performed. While EIAs are performed in all European countries, there are significant differences in screening regulations and screening practices (Pinho, McCallum, & Cruz, 2010). For that reason, this study looks at three countries to consider such influences and their effects.

1.2 The Public Debate

Impactful projects may generate considerable controversy (Beattie, 1995). Controversy is a dispute or debate in which divergent opinions and values are articulated. When there are many trade-offs within a project, a lot of uncertainty, or even controversy, may arise, like in energy projects (Axsen, 2014). Offshore wind projects can result in public debates, as the example of Friesland shows. Debates are shaped over time by the articulation of opinions and values in the media, articles or even the EIA. The shaping of those debates is also a form of assessment, be it in a more informal way. That is, in such a debate, people provide (more or less explicit) assessments of a project’s impacts and related values such as safety, fairness of distribution of costs and benefits, costs, sustainability, etcetera. For this reason, we can refer to debates as an informal assessment.

Among EIA developers, project owners, government and others, it is generally known that an EIA can be used by communities to develop or mitigate their opinions or ideas about the project (Beattie, 1995). It is mandatory by law to make the results of an EIA-study available for local communities during the project. This is one way, local communities are informed of possible impacts of the project. Parts of the information defined in the EIA can be used as a pro or con to a greater or larger extent in the public debate. For example, for an offshore wind project it might state the possible impacts on the habitats of the fishes. This can then be used by the fishers as a con in the public debate on the offshore development. However, the EIA may also reveal a pro for offshore development, which can be used by other stakeholders to influence the debate. Rather than reducing contestation in public debate, the results of an EIA often add to it.

Projects worldwide would most likely be less controversial if perspectives and concerns of diverse stakeholders are understood and accommodated better (Stidham & Simon-Brown, 2011). The perspectives of stakeholders tend to be shaped by their values. These values influence how they access and perceive information from different sources. Understanding the process of how perspectives influence the shaping of values can help policy-makers to engage stakeholders more effectively (Axsen, 2014, Bond, Viegas, Coelho de Souza Reinisch Coelho, & Elig, 2010).

As said above in 1.1, when values and interests of stakeholders are taken in account, it can increase the legitimacy and acceptance of the EIA’s process and its outcomes. That makes it key for decision-makers to understand how the perspectives of stakeholders shape their values, because it will influence how they assess the information of the EIA and the articulation of opinion and values will shape the debate over time. So, by creating insight in this process, decision-makers might be facilitated to influence the EIA’s process and outcomes by influencing the EIA but also the shape of the debate over time.

1.3 Why offshore wind as subject matter

To study the interaction between the EIA and the public debate, this research focused on one main subject matter; offshore wind. This choice is based upon a few different aspects. First, renewable energy

projects have a high priority on policy agendas and have to deal with increasing public opposition (Firestone & Kempton, 2007). European policy-makers set ambitious goals for offshore wind development (Prassler & Schaechtele, 2012). It is a fast growing industry and the European Wind Energy Association (EWEA) suggests that by 2030 as much as 50% of the total wind capacity may be installed offshore (Green & Vasilakos, 2011). Additionally, offshore wind has a heightened profile in both public debate and as a research topic (Ellis, Barry, & Robinson, 2007).

Second, the design of the offshore wind farm is a complex problem, involving many decisions such as depth, distance from shore, substructure, wind turbine and distance between the turbines. A good balance between different variables is essential in order to minimize the cost while maximizing the energy production. In addition, there are technical conditions that need to be taken into account as well. For example, the turbines' foundations are a critical aspect in the development and expansion of a wind farm (Musial, Butterfield, & Ram, 2006). There are different types of substructure for the foundation of an offshore wind turbine, non-floating and floating structures (Azau & Bianchin, 2012). It is important to select the most efficient foundation, since the costs are approximately 15% to 40% of the total cost of an offshore turbine (Sun et al., 2012). Furthermore, the cost efficiency, sea bed, water depth, wave heights and currents also need to be taken into account. Thus, there are many technical choices on different aspects where every alternative varies in cost, energy production and impact on its environment. Hence, an EIA study on offshore wind farms is required to assist decision-makers in informed decision-making.

Third, it seems to be a misconception that offshore wind sites are a problem-free alternative for onshore wind sites. On the contrary, the development of offshore wind projects do face opposition, conflicts or lack of full support (Devine-Wright & Howes, 2010; Ellis et al., 2007; Haggett, 2011). This can result in long delays, public inquiries and on-going disputes. That's why it is important to take the response of the public on offshore wind farms in consideration. However, little is known about how people will actually respond to offshore wind, as opposed to onshore wind development. Devine-Wright & Howes (2010:278) state that, "offshore wind farms may be just as controversial as onshore projects, since the places affected by change do not cease at the edge and include the view of the horizon". A common way to explain controversy is with the so called "Not In My Back Yard effect" (NIMBY). This concept, however, does not adequately explain the opposition. NIMBY fails to reflect the complexity of human motives, behaviour and the interaction with social and political institutions.

In order to create a deeper understanding of the public acceptance, policy makers and experts should take the responses on offshore wind into account (Ladenburg, 2008). The gaps in perception of policy-makers between what is assumed (offshore being problem-free) and what is happening in planning procedures (lack of full support) have led policy-makers to make incorrect inferences about factors underlying the public acceptance regarding their plans and projects. A broader view is required to understand the public debate on offshore wind, so that the values and interest can be better integrated in an EIA to improve the legitimacy and acceptance.

Selection of the case study

As said above, it is important to create insight in the complexity of human motives, behaviour and the interaction with social and political institutions for offshore wind projects. However, institutions can vary during and among projects. In order to determine the influence of these institutions on the EIA, the public debate, or their interaction, this study looks at three offshore wind project who's institutions are diverse.

The first case studied is Gemini, an offshore wind farm located in the North Sea off the coast of the Dutch province Groningen, above the island of Schiermonnikoog. This project is the case study in this

research and will be studied in-depth with the method 'event sequences analysis'. The first offshore construction of Gemini started in the beginning of 2015. ARCADIS (Netherlands) conducted the EIA study of Gemini and the accessory offshore grid cable. The fact that this study is performed in collaboration with ARCADIS, allowed for more information to be available on this project. Which is why Gemini was selected as a case study.

In addition to the Gemini case, two other offshore wind projects were studied (Annex V and Annex VI), these being Norther, located in Belgium, and Nordsee Ost, located in Germany. These projects will be used to reflect on the findings from the analysis on patterns and mechanisms regarding Gemini in chapter 6. These projects were however not studied in-depth, because the method event sequence analysis is very time consuming. Due to time constraints, the actual research was therefore completed using one case study.

1.4 Research problem: Lack of insight in the interaction between the EIA and the Public Debate

Formal assessments refer to the procedures and guidelines, which are part of legally established governance structures that aim to evaluate the desirability of (a decision on) an energy project (RESPONSE, 2014). Whereas informal assessments refer to the myriad of ways in which groups in society establish an opinion about an energy project (technology, procedures, project, etc.). This assessment often takes place outside the formal designated procedures and guidelines; for instance through social movements, civil society organizations, (social) media, etc. (RESPONSE, 2014).

The interaction between the EIA (a formal assessment) and the public debate (an informal assessment) is a topic insufficiently explored in literature and less acquainted for policy makers and they therefore struggle with this during the decision-making process. An EIA-study efforts to assess public values and represent them within the assessment in order to increase the legitimacy and acceptance of the EIA process and its outcome. Debates among the public are shaped by the articulation of opinions and values in the media and articles but the EIA can similarly develop or mitigate their opinions or ideas about the project. Due to the fact that the EIA is made available to inform the community of the possible impacts of the project, the EIA may also support, oppose or mitigate the public debate and become a focus of controversy (Beattie, 1995). That way, the EIA is being discussed with the public debate. On the other hand, in the debate, the informal assessment of the project, alternative options can appear that could be included in an EIA. So there is a form of interaction from the EIA toward the public debate, but also from the public debate towards the EIA. It is key to better understand this interaction because it shapes the EIA and the public debate as this will affect the legitimacy and acceptance of a project outcome.

In order to create insight in this research problem, two things are needed; a suitable perspective and method, the 'why' is enlightened below. Over the years, a lot of research has been performed on different aspects of the EIA from different perspectives. It is important to choose a perspective that provides the right insights in the research problem. Nykvist & Nilsson (2009) review the problem whether or not the EIA procedure may promote sustainable development from an institutional perspective. They have observed institutional factors determining the function of the EIA. Webler et al. (1995) reviewed the public participation in the EIA from a social learning perspective, whereas Cuppen et al. (2015) observed the public participation in the EIA from an actor perspective and (O'Faircheallaigh, 2010) from a democratic perspective. The institutional, social learning and democratic perspective contribute to insights on various aspects, but are less suitable for the research problem in this study. This research problem needs a perspective that creates insights in the interaction and the contextual

role on the interaction. The institutional perspective might create insight in the contextual role, however, is less suitable for the interaction aspect. The same holds for the social learning and democratic perspective. They both might help in understanding more of the contextual role, however, will not fit the whole research problem. As said, there is interaction between the EIA and public debate. When there is an action formed by one party, another party can form a reaction on that action. Such a reaction can then again result in some form of reaction. So there is a continuous interaction between various parties, which gives the interaction a dynamic aspect that is changing over time. The interaction between the EIA and public debate is an ongoing process. Therefore, the problem requires a perspective that takes those aspects and changes into account.

Furthermore, the perspective requires a method that creates insight in these dynamics and changes. Summarizing, there is need for insight in the main interaction between the EIA and public debate but also in the dynamic aspects of the whole process. Chapter 3 will introduce the perspective selected in this research and in chapter 4 the method to create insight into the interaction will be enlightened (Figure 3).

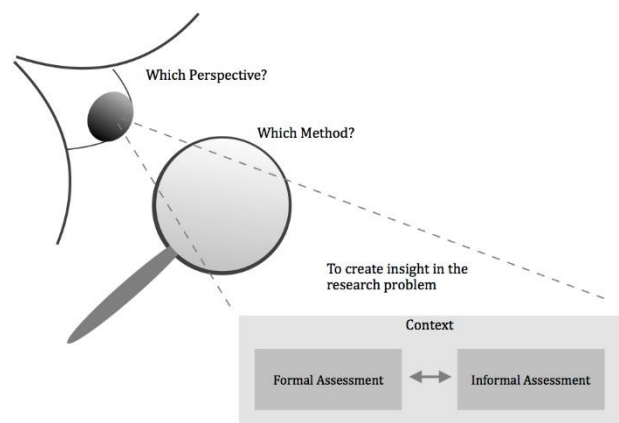


Figure 3 In order to create insight in the research problem, a suitable perspective and method are needed.

1.5 Research questions and approach

Based on the above mentioned research problems, the main question that is to be answered is:

“How do the Environmental Impact Assessment and the Public Debate interact in decision-making on offshore wind projects?”

In order to research the main question, it is essential to see what the literature reveals on the subject, resulting in the first sub-question:

1. *How can the interaction between the EIA and the Public Debate be better understood theoretically?*

Answering this question clarifies the approach and model used, which will provide the basis for the method used to analyse the interaction. Furthermore, it is important to know what the benefit of this method is in creating understanding in different aspects of the problem, suitability for different research problems and the analysis methods, resulting in the next sub-question:

2. *Which method creates insight in the interaction between the EIA and the Public Debate over time and which additional benefit(s) does this method provide?*

The Gemini project will be used for a deep analysis of the interaction between the EIA and the public debate to understand how the project patterns evolved over time and why they evolved that way. In order to analyse the patterns, a lot of data is needed on Gemini. Data that reveals the ‘what’s’, ‘who’s’ and ‘when’s’ on aspects of the EIA, public debate, project, context and interaction:

3. *How did the Gemini project evolve over time, which actions were important and how did they influence the process?*

Next a deeper analysis is needed on the manner in which patterns between the EIA and public debate arise:

4. *Which patterns can be identified in the interaction between the EIA and the Public Debate and what mechanisms are behind the occurrence of such patterns for Gemini?*

As stated in the introduction, decision-makers first need to understand the interaction, so that they can better anticipate this complex process and by that improve the decision-making process:

5. *How can decision-makers better anticipate on the interaction between the EIA and the Public Debate?*

By answering the sub-questions, the main research question can be answered.

1.6 Research Justification

1.6.1 Scientific relevance

The research focus of this thesis is dissimilar from previous scientific research. Considerable research has been done on EIA contents and its implementation (Pinho et al., 2010; Vaissiere, Levrel, Pioch, & Carlier, 2014). As well, research observed EIA accomplishing its purpose (Jay et al., 2007; Vanderhaegen & Muro, 2005), among European member states and on countries outside Europe. Additionally, research has been executed on the level of involvement of the public in EIA (Glucker et al., 2013; O'Faircheallaigh, 2010; M. E. Portman, Duff, Koppel, Reisert, & Higgins, 2009) and the role of EIA in decision-making (Leknes, 2011; Runhaar et al., 2013) and how it supports controversy (Axsen, 2014; Beattie, 1995; Stidham & Simon-Brown, 2011). Where the researches mentioned above focused on important topics, none of them directed the interaction between the EIA and the public debate (see Table 1 for an overview). In order to research this aspect, we do not only need a different perspective, but also a different method.

This research will look at the interaction between EIA and public debate as a dynamic one that changes over time. For the reason that the interaction between the EIA and public debate is not a static relation, this research attempts to deliver a theoretical basis to understand the dynamics (Boons, Spekkink, & Jiao, 2014; Leknes, 2001; Sminia, 2009). The perspective in this research problem is different from previous scholars. As mentioned above, different perspectives have been used by researchers to review the EIA as an institutional perspective (Nykqvist & Nilsson, 2009), a social learning perspective (Webler, Kastenholz, & Renn, 1995), an actor perspective (Cuppen, Broekhans, & Enserink, 2012) and from a democratized perspective (O'Faircheallaigh, 2010). The dynamics of the relation between EIA and public debate require a different perspective and consequently a different method.

Moreover, this research observes the contextual influence on the relation, as context factors can play a role in the dynamics of the process and are therefore essential to take into consideration (Kolhoff et al., 2013; van Doren et al., 2013). This is different from other research in which either the context factors that influence the EIA implementation, or the contents of the EIA were examined. Thus, this research contributes to the research field the influence of the context on the dynamic aspect of the interaction between the EIA and the public debate.

Last, this research contributes to a better understanding of public response toward offshore wind projects. It has already been pointed out by researchers that insight into public acceptance and policy responses towards offshore wind projects is important (Bell, Gray, & Haggett, 2005; Ellis et al., 2007) and that the NIMBY effect fails to completely explain this (Devine-Wright, 2005; Wolsink, 2006, 2007). This research offers more insight into this industry by taking the wind industry as case study.

By looking at the interaction from a different perspective and with a different method, including the contextual influence on the interaction, this research can contribute towards a better understanding of the interaction between the EIA and the public debate. With the result being that decision-makers can anticipate better or differently on affecting the relation.

| Subject | Authors |
|---|--|
| EIA and controversy. | (Beattie, 1995; Glucker et al., 2013; O'Faircheallaigh, 2010; M. E. Portman et al., 2009) |
| Creating insight in public acceptance and policy responses for offshore wind energy projects. | (Bell et al., 2005; Ellis et al., 2007) |
| NIMBY effect for offshore wind energy. | (Devine-Wright, 2005; Wolsink, 2006, 2007) |
| Importance of understanding public perception of offshore wind energy. | (Bell et al., 2005; Devine-Wright & Howes, 2010; Ellis et al., 2007; Haggett, 2011; Ladenburg, 2008, 2009) |
| Advantages and challenges of offshore wind compared to onshore wind. | (Bilgili, Yasar, & Simsek, 2011; Breton & Moe, 2009; Green & Vasilakos, 2011) |
| Contribution of context to performance EIA. | (Kolhoff et al., 2013, 2009; van Doren et al., 2013) |

Table 1 Overview of performed research on the different topics

1.6.2 Practical relevance

The practical relevance of this study is that it helps to;

- Gain more insight into the legal and procedural contents of the EIA and the offshore wind policy in the Netherlands.
- Better-informed decisions on how to use the EIA during the decision-making phase of (offshore wind) projects.
- Gain more understanding about the dynamic relation between EIA and the Public Debate and the contextual influence on the relation.
- Provide insight into how the perspective taken in this research can be used to create insight in such dynamic relations as that of the EIA and Public Debate.
- See how the method in this research can be used with such a perspective, to create more insight in a dynamic relation.

Furthermore, this insight can be taken into account in the responses, arrangements, timing and variety of including actors in either EIA or public debate (Firestone & Kempton, 2007; Ladenburg, 2009). As a result, this insight could influence the EIA procedure or steps used during a project. In addition, it can cause a better fit of the EIA for a project as well as fewer EIA adjustments or repetitions during/after the project therefore potentially resulting in reduced project time, reduced cost, reduced amount of controversies or in a better project, resulting in more successes and less planning risks.

1.7 Research Approach

To assess the knowledge on the interaction between the EIA (formal assessment) and the Public Debate (informal assessment) the following research approach will be used, see Figure 4.

A literature study on the EIA, public debate, process research and contextual influence (a) together with Walkers framework (b) will form the basis for the construction of the conceptual model done in chapter 3. The conceptual model results in the selection of method(s) which will be elaborated in chapter 4. The results of the analysis of Gemini with the ESA method are listed in chapter 5. Whereas in chapter 6 the analysis is accomplished. Chapter 7 will entail the conclusion and list the recommendations.

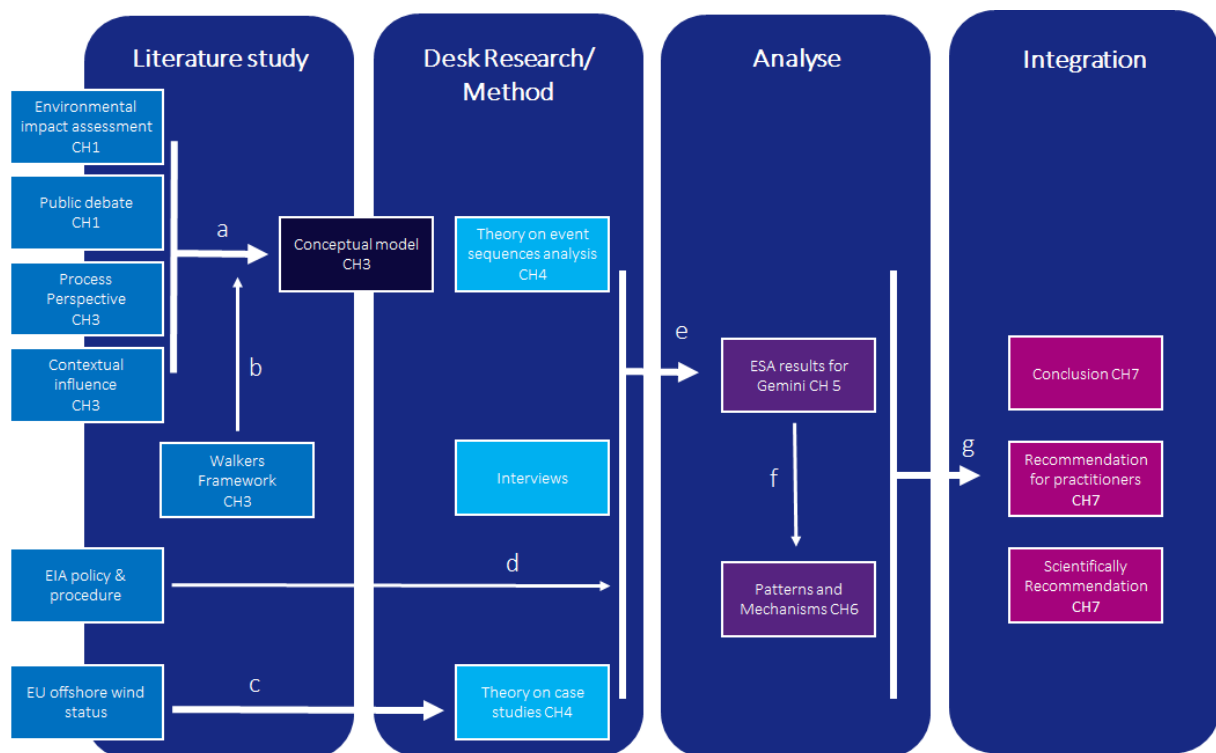


Figure 4 Illustration of the research approach in used in this study.

2

Offshore wind: Technology, Dutch policy and the Gemini wind park

2. Offshore wind: Technology, Dutch policy and the Gemini wind park

Offshore wind projects can be influenced by different aspects. In this chapter, three important aspects that can influence an offshore wind project, which need to be taken into consideration when studying them, will be discussed. Namely the technique, the country's offshore wind policy and the country's EIA procedure for offshore wind. For example, the design of an offshore wind project has an effect on the amount of generated energy, cost, construction technique, space to name a few. Furthermore, the offshore policy can be either very flexible or tight, which might affect the project's amount of free or flexible choices. Finally, the EIA procedure for offshore wind in a country captures the steps that are mandatory in a project. This chapter will end with a short introduction on the Gemini wind park.

2.1 The technical aspect of offshore wind

The layout of the wind farm is complex and involves many trade-offs such as for example depth, distance from shore, substructure, wind turbine and distance between the turbines. A good balance between different variables is required, for costs to be minimized while the production of energy is maximized. Alongside, there are technical boundaries that need to be taken into account as well.

The first step in constructing an offshore wind turbine, is the foundation on the sea bed. On this foundation, the offshore wind turbine is placed. The offshore wind turbines are connected to a substation with a cable located on the sea bed where all generated electricity is collected. From the substation, the offshore wind farm is connected to the main land. There are multiple choices for the design of the turbine, such as height, width, form, the rotors and their length and width as well as the space between the turbines. In current offshore wind farms, turbines are arranged in rows, with a 5-10 rotor diameter space between the turbines as well as spacing between the rows of 7 to 12 diameter (Sun et al. 2012). This section elaborates on the different substructures, turbines and grid connections.

2.1.1 The foundation techniques

The substructure is a critical aspect in the development and expansion of a wind farm (Musial et al. 2006) as the foundation costs are approximately 15 to 40% of the total cost of an offshore turbine (Sun et al. 2012). It is important to select the most efficient foundation type. Sea floor, water depth, wave heights and currents need to be taken into account. When the depth increases, the cost will most likely increase as well. The reason for this being that the techniques deployed are more complex. Correspondingly, foundations need to be shipped to the location and a greater distance from the shore will increase the transportation costs. Figure 5 shows how the costs for the foundation are related to the depth for different substructures.

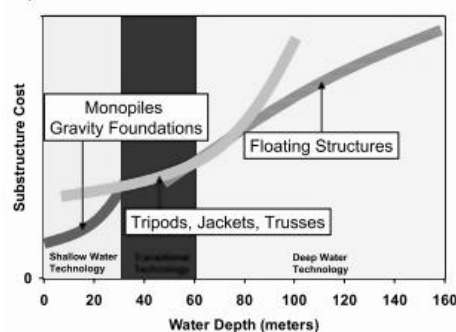


Figure 5 Cost of offshore wind turbine substructure in relation to the water depth (Musial et al. 2006).

There are two different substructure types, non-floating and floating (Figure 6(Azau & Bianchin 2011)). For the selection of the structure, the cost, water depth, seabed conditions, turbine characteristics and technical/ commercial risk factors must be taken into consideration. The different substructures will be briefly discussed below.

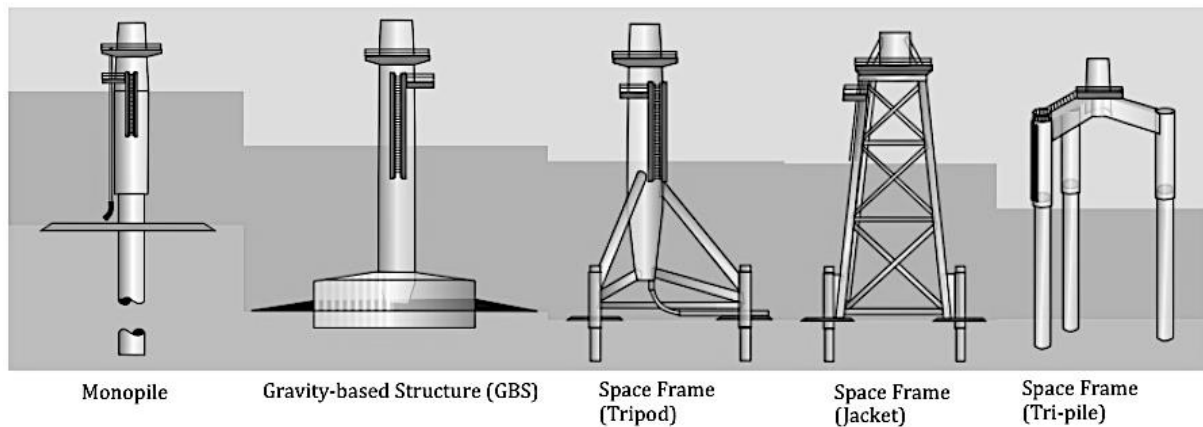


Figure 6 Non-floating substructure designs for the foundation in the sea bed (Azau & Bianchin 2011).

Monopile foundation

Currently, the monopile foundation technique is most used. This technique is relatively simple and most current offshore wind farms are located within a depth of 25 metres. Monopiles consist of one steel pile, which is embedded in the seabed. The overall construction depends on the water depth and capacity of the wind turbine. The monopile becomes less stable in deeper water. Future development might make it possible to increase the diameter and that way the monopile becomes suitable for deeper water sites. This development would be favourable for its low labour content and simple construction (Azau & Bianchin 2011).

Gravity-based foundation

This structure is designed to avoid tensile or uplift forces by providing dead loads to weigh down the structure so that it retains its stability in all environmental conditions (Azau & Bianchin 2011). When installed on the seabed, its weight is increased. The dimension of the foundation is increased in relation to the turbine capacity, site and water depth. Gravity-based foundations are suitable for depths up to 30 metres, some constructions are even suitable for deeper sites. This construction is often used in the Baltic Sea.

Space frame foundation

Space frame foundations are considered when the seabed is deeper and the monopile and gravity-based foundations can not be used. There are three categories; the multipods - divided into the tri-pods and tripiles - and the jackets foundation. Tripods consist of a small three-legged structure. The penetration in the seabed and the base width can be adjusted fitting to the surrounding conditions. The distance between the piles vary between 20 and 40 meters. Tripods are suited for a water depth of 20 to 50 metres. Jacket foundations need more seabed space. A few offshore sites have used the jacket construction and it is argued that this construction has the potential to further reduce cost. Tri-piles consist of three foundation piles connected via a transition piece to the turbine tower. BARD GRUPPE has patented a version of this type (Azau & Bianchin 2011).

The different floating structures

Not all sites are suited for the substructures stated above. Within Europe, there are different locations where the non-floating foundation types are not an option as the water depth is over 50 metres. For these depths, floating structures can be used, see Figure 7 (Azau & Bianchin 2011). Floating structures have more flexibility in their construction and installation. However, these floating support structures have challenges that need to be taken into consideration, such as the wave motion, electrical infrastructure design, cost and construction (Azau & Bianchin 2011). There are three primary types of floating support structures; the spar, tensioned-leg platform (TLP) and floating jacket. These floating structures will become more prominent technologies in the future.

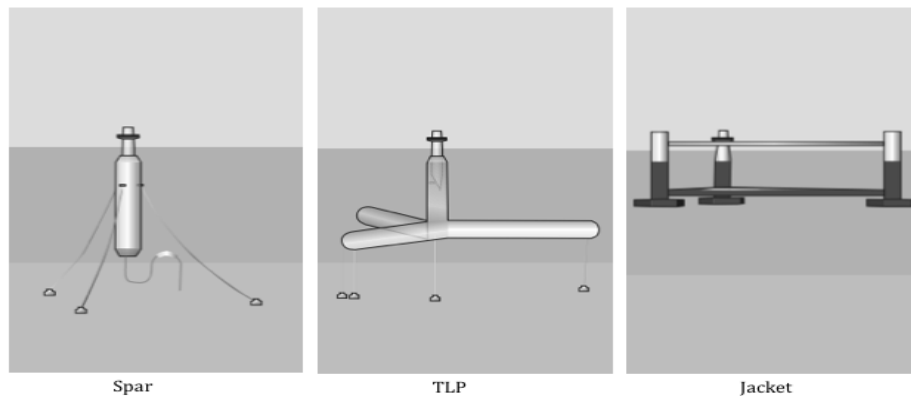


Figure 7 Floating support structures designs.

2.1.2 Generator of the turbine and its control system

The turbine generates the electricity and is installed on top of the support structure. The offshore turbine—resembles the onshore turbine, although it has a few modifications, such as corrosion protection, climate control and building service cranes. Most of the turbines have three blades with a range of 65 to 130 metres and most of them have a horizontal axis (Sun et al. 2012). One of the reasons for the blades to be larger is that there are no land-based limitations.

The range of the installed offshore wind turbines is between 2 and 3 MW. However, a lot of development is taking place in this segment. BARD GRUPPE has developed a turbine of 5 MW with a diameter of 116 to 122 metres and Sinovel (located in China) has produced a 6 MW prototype. Even the development of 15MW turbines is occurring (Wu et al. 2014; Sun et al. 2012).

The horizontal axis turbines are dominant in the market, although researchers suggest that the vertical axis turbines possibly have a better performance and are more cost-effective (Sun et al. 2012). It is claimed that the size and power of the vertical axis turbines could generate more electricity compared to horizontal axis turbines and thus generate more electricity at lower costs.

The control of the turbine has various functions. It must control speed, pitch and maximum power, start and stop, and feature monitoring and protection control. There are two different control systems: the fixed-pitch control and the variable speed constant frequency system (VSCF) (Wu et al. 2014).

2.1.3 Conversion system in the turbine

In principle, the conversion systems for the generated power are the same for onshore and offshore wind turbines. There are a few different types, DFIGs (doubly fed induction generator), PMSG (permanent magnet synchronous generators) and SCIG (squirrel cage induction generators) (Madariaga et al. 2012). The electrical loss and the location of the electrical converter are important for the choice of type.

The DFIG technology is widely used onshore. This technology has lower investment costs and higher reliability. The drawbacks of DFIG are the maintenance costs and the limited rate of wind speed control. PMSG has low operation and maintenance costs. If there is a direct driven configuration, PMSG is a good choice. SCIG minimize operation and maintenance and maximize the flexibility with the full power converter (Madariaga et al. 2012). In current offshore wind farms, DFIG converters are predominantly used. Although in the new wind farms, 80% choose the SCIG solution which is therefore becoming a more attractive choice.

2.1.4 Grid connection

Every offshore wind turbine needs to be connected to the main grid on land. Between the wind turbines lies an internal grid, the collector system (CS), which collects the generated power from the turbines and transports it with one or more cables to the offshore substation. From the substation, the transmission system (TS) transports the electrical power to the onshore main grid, Figure 8.

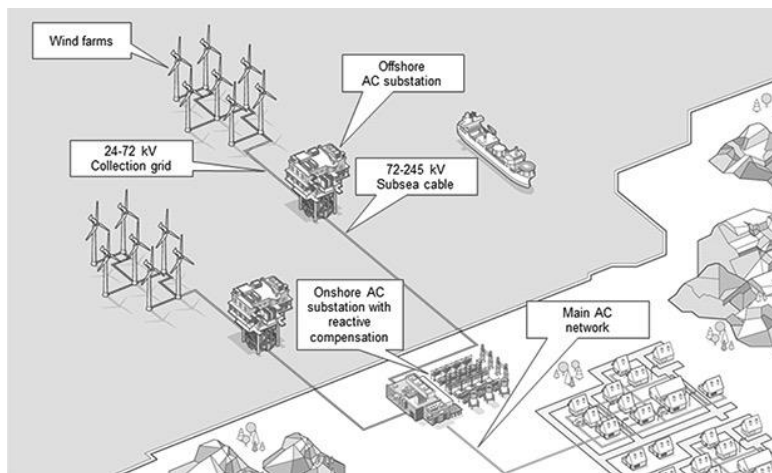


Figure 8 Overview offshore wind grid construction, source: <http://new.abb.com/systems/offshore-wind-connections/ac-solutions>.

The amount of offshore wind power has grown over the last years and has an impact on the host grid. New integration solutions need to be searched for to take this into consideration (Perveen et al. 2014). Linking offshore to onshore can be done through HVDC (Glasdam et al. 2012). There are two types: the classical HVDC and the high voltage source converters VSC-HVDC (De Decker & Woyte 2013). The HVDC VSC transmission is a relative new technology, which has certain advantages. First, it allows for better control of the electricity flow and direction. It is able to establish a grid from blackstart and to operate in weak grids. Second, it is easier to design them more compact than the classical ones and it enables the connection of offshore wind farms with interconnectors.

2.2 The Dutch offshore wind policy

Recently, the offshore policy in the Netherlands has changed. The case study, Gemini, was influenced by the past and current policy. That is why both will be discussed in addition to the motivation behind the reform. After that, the procedural steps of the EIA will be discussed.

2.2.1 The Previous Policy

The original policy model did not serve the best national interest. The policy model gave little to no room for competition among offshore proposals submitted by different developers. In the past, offshore wind developers sent a proposal to the Ministry of Transport, Public Works and Water Management. The ministry provided the guidelines for the permit and made the proposal available to the public. For

a permit, the construction, decommissioning and an Environmental Impact Statement (EIS) plan were required (Snyder & Kaiser, 2009). When the proposal was granted, the developer had two years to complete the construction. Additionally, developers needed permits for cables to shore and across shore.

When the new policy was introduced, there were a few wind farm projects with an existing permission. One of them was Gemini. Some of the projects could hold on to their permits, while other permits became invalidated. The reason given by the Dutch ministry was that the development of wind farms would be far too expensive in comparison to the current offshore wind plans (MinEZ, 2014).

Motivation for a new offshore wind policy

Together with the Provincial Authorities, the Ministry of Economics and the Ministry of Infrastructure and Environment agreed in 2012 to carry out research for potential offshore wind development within the 12 mile zone off coast combined with a social cost benefit analysis (Rijksoverheid, 2014). This study explored five areas within the 12 mile zone, namely;

- the coast of the province of Zeeland,
- the Maasvlakte (situated near the harbour of Rotterdam),
- off the coast of Zuid-Holland,
- off the coast of Noord-Holland.
- near the island of Ameland.

The analysis showed a cost benefit for offshore wind development within the 12 mile zone. According to the study, cost for construction, management and maintenance of the offshore wind farms would decrease due to the fact that they are shorter to shore (Dieperink, 2015). Reasons for the cost reduction are less heavy weather conditions, reductions in distance for shipping parts and employees, reduction of the depth of the seabed and reduction of the cable from the offshore side towards the main land. The outcomes of the study was one of the motives to create a new offshore wind policy. Furthermore, the new offshore policy contributes to efficient use of space, resulting in more cost reduction and acceleration of offshore wind power.

The new system requires that the Dutch Government decide on new construction locations. As a result, a new legislative proposal needs to be adopted. This proposal will make it possible for the Dutch government to take the leading position in spatial planning of wind energy and the interests in the North Sea.

2.2.2 The Current Policy

The current offshore policy exists of two central changed aspects: the National Water Plan and the owner of the offshore grid. The National Water Plan states the sites for offshore wind construction (Table 2). Only these sites will be given permits for construction. The sites are situated 22 kilometres off the coast, although others will be a bit closer to the shore. This pertains only to the sites off the coast of the provinces of South and North Holland at a maximum distance of 18,5 kilometres. The argumentation for this choice of the new policy are the costs, which will decrease by 1,2 billion euros.

| Year | Energy agreement (in MW) | New agreement (in MW) | Location |
|------|--------------------------|-----------------------|-------------------------------|
| 2015 | 450 | 700 | Borssele |
| 2016 | 600 | 700 | Borssele |
| 2017 | 700 | 700 | Hollandse Kust: South Holland |
| 2018 | 800 | 700 | Hollandse Kust: South Holland |
| 2019 | 900 | 700 | Hollanse Kust: North Holland |

Table 2 Overview of the Natioanl Water Plan 2015 till 2021.

Site Decisions

Responsibility for an orderly realisation of any wind farm project lies with the Dutch Ministry of Economic Affairs, the main authority, and the Ministry of Infrastructure and Environment and the co-authority (Dieperink, 2015). As an initial step in selecting possible locations for wind farm projects, the Government itself, through the Ministries, carries out an EIA study, as well as other appropriate assessments. These studies will lead to an official “siting decision” (*kavelbesluit*), determining where and under which conditions a wind farm can be built and made operational. The overview of the sites is then published, which makes it possible for the potential project developers to make a customized tender for the locations. With this strategy, the Dutch Governments tries to realize the aim of the National Water Plan, realizing wind farms at a lower cost.

On one site, multiple options are possible, allowing for flexibility in the wind farm's design. In this way, private developers have the opportunity to choose different options within the natural and environmental framework. The selection for every site will be by separate bids in the SDE+5, where the lowest bidder is granted the subsidy. This bid must be lower than the maximum price that is set for one location. However, the government will also take into account other factors, such as wind speed, soil and water data when granting the project to a particular party. If a party is awarded a subsidy, it obtains the exclusive right for offshore wind development on that location.

TenneT selected as exclusive offshore Grid Owner

Furthermore, the offshore grid policy is different from what it used to be. In the past, each offshore wind farm was connected to the main onshore grid by its own platform and its own cable. Now there is one owner of the offshore grid, namely the Dutch party TenneT (also owner of the onshore high voltage grid). They were pointed out by the Dutch government on June 18th, 2014. TenneT is now responsible for connecting offshore wind farms in the Dutch Waters to the main onshore grid. This choice was based on different studies showing a social benefit of 3 billion euros will be attained, in case TenneT would be the main offshore connector (MinEZ, 2014). TenneT is realizing this by placing five offshore platforms of 700MW with two cables of 220kV connected to the onshore grid. To each of these platforms, two offshore wind farms will be connected. This way, less offshore platforms and cables are needed, reducing cost but also environmental impact.

With the combination of the National Water Plan and TenneT as the owner of the offshore grid, the Dutch Government strives to reduce the cost for offshore wind development and by that the cost for offshore wind energy.

2.3 The Dutch EIA procedure

When a developer is granted the subsidy for an offshore wind site location, they need to perform an EIA. In the Netherlands, the EIA procedure consists of seven steps (Informil, 2015), see Figure 9. For the extended procedure, all seven steps are mandatory, while for the limited EIA procedure some steps are optional. All seven steps in the EIA procedure will be briefly described below.

1. Project initiation

The initiator, a public or private party, who wishes to undertake an EIA activity, must submit the intention in writing to the competent authority or the administrative body. This project initiation is obligatory for both procedures.

2. Public review

As soon as the appropriate authority receives the project initiation, the plan needs to be made publicly available. This is initiated by the competent authority and is publicised in national and local newspapers.

In case the initiative stems from the central government, the notice is placed in the Gazette (in Dutch the “Staatscourant”). The publication is primarily limited to the Netherlands. However, when the project could affect other countries, it needs to be made publicly available to them as well. This second step is only mandatory for the extended procedure.

3. Consultation on range and detail level

When it comes to the extended procedure for the EIA study, consultation on range and detail level of the context of the EIA study is obligatory. The authority provides the project initiator with a document of what is mandatory to be included in their EIA study. For the limited procedure, the proper authority only provides the initiator with advice on the EIA content.

4. Establishment of the EIA

The content requirements of the EIA are established in the national law in art. 7.7 and art. 7.23 (Informil, 2015). In addition, the EIA needs to comply with the European guidelines at all times (because of the translation of the European directive in the Dutch national law). The EIA study contains a full assessment of the impact on all legal aspects dependable of different options of the project. There are no official periods determined in the law for the establishment of the EIA study. The establishment of the EIA study is mandatory for both the extended as well as the limited procedure.

Notification, public review and advise of the Commission EIA

After the EIA study is completed, a notification is published. After that, the public has six weeks to examine the EIA study. For the extended procedure, the proper authority is required to gain advice from the EIA commission.

Decision

When the whole EIA-procedure is carried out correctly, the proper authority will make a final decision on whether to grant the project or not. Prior to this decision, a final review is carried out looking specifically at the results that concern the environmental impact of the project. After the final decision, no other governmental parties have the possibility to submit objections and appeals.

Evaluation

It is mandatory as well to evaluate the real impacts once the project is realized. The procedures and terms for this are clarified and documented before the project is realized, so that it can be planned properly. Figure 9 gives an overview of the procedural steps.



Figure 9 Procedural steps for the EIA in the Netherlands.

2.4 The Gemini wind park

In order to study the interaction between the EIA and the public debate, a case study of the Gemini wind park will be conducted (see chapter 5). In this section, a description of the Gemini wind park and its planning process will be given.

Gemini will be located in the North Sea within the EEZ of Holland (above Groningen, one of the provinces in the North of Holland). It will be placed far from shore, 85km from the mainland and 55km from Schiermonnikoog. Once Gemini is fully constructed, it will be one of the largest offshore wind farms worldwide with a total capacity of 600MW.

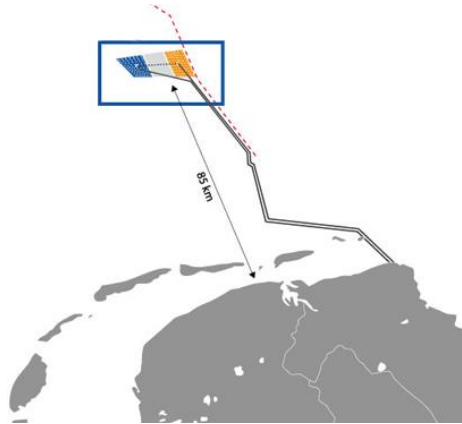


Figure 10 Location of Gemini, which has had 4 project owners. Gemini exist of two separate parts. The blue part; “Buitengaats CV /BARD Offshore” was from BARD Gruppe. The Yellow part; “ZeeEnergie/GWS Offshore NL1” was from Eolic Power. The Grey part in the middle called “Clearcamp CV1 /EP Offshore NL1” was from Global Wind Support, this part belong to Gemini.

From 2006 to 2009

On April 1st, 2006, three project initiations were submitted to the appropriate authority, the Ministry of Infrastructure and Water (e.g. Verkeer en Waterstaat). The following 3 initiations took place:

- Bard Offshore NL1 by BARD Gruppe;
- EP Offshore NL1 by Eolic Power GmbH;
- GWS Offshore NL1 by Global Wind Support.

The three separate companies, BARD GRUPPE, Eolic Power GmbH and Global Wind Support, belonged in fact to one company; “BARD Gruppe”. BARD-Gruppe is a Germany-based company. BARD Gruppe was established in 2003 and focuses on the development and contraction of new renewables offshore. All three companies notified the Ministry that they wanted to construct offshore wind farms at the locations. Thereby, they were required to perform an EIA study. In May 2006, the initiations were publicly available.

On July 10th, 2006, the companies received documents from the Ministry, which described the range and detail level for the EIA study. After two and a half years, the Ministry and the EIA Commission received the three EIA studies for the locations and the applications for the licenses. On December 4th, 2009, all three companies received permits for the sites and had the permission to construct the offshore wind farms. Note that the name of BARD Gruppe was used in the media and referred to all three companies. Table 3 gives an overview of the procedural steps of the three projects.

| Project name | Project owner | Name Location | Part of Gemini | Project Initiation documentation | | Advise Range and Detail | EIA publication | Permissi on Applicati on | Dispositi on |
|-------------------|---------------------|----------------|----------------|----------------------------------|------------|-------------------------|-----------------|--------------------------|--------------|
| Bard Offshore NL1 | BARD | Buitengaats CV | Yes | 1/4/6 | Not online | 10/7/6 | 12/1/9 | 1/1/9 | 4/12/9 |
| EP Offshore NL1 | Eolic Power GmbH | Clearcamp CV | No | 1/4/6 | Online | 10/7/6 | 12/1/9 | 1/1/9 | 4/12/9 |
| GWS Offshore NL1 | Global Wind Support | ZeeEnergie CV | Yes | 1/4/6 | Online | 10/7/6 | 12/1/9 | 1/1/9 | 4/12/9 |

Table 3 Procedural Steps EIA for the three locations and projects Bard, EP and GWS Offshore NL1.

BARD Gruppe received the permits for all three offshore locations. From those three, two also received subsidy (EP Offshore NL1 was not subsidized). BARD Gruppe did not expect or even anticipate this outcome. Therefore, BARD Gruppe, a relatively small party, now had to develop two wind farms of 300MW each.

BARD being a foreign party led to negative reactions

Different Dutch parties were dissatisfied with the fact that BARD Gruppe, a party outside the Netherlands, had received the permission. Many other parties applied project initiations for offshore locations in the past and most of these parties were refused the subsidy. That BARD Gruppe, as a foreign party, was allotted two subsidies led to certain discussions. Not only among parties who did not receive the permission, but also among secondary parties. Their main fear was that because BARD was located in Germany, they would hire German contractors and that way all the profit would go towards Germany.

Bard was aware of the negative reactions from other parties. In May 2010, they announced that they planned to involve as many Dutch parties as possible. One of the Dutch parties that was contracted by BARD Gruppe was Typhoon. Typhoon became responsible for the financial aspects and finding investors for the projects. In 2011, after the summer, Typhoon gained control of the project and became the project owner of the two locations, Buitengaats (Bard Offshore NL1) and ZeeEnergie (GWS Offshore NL1). BARD Gruppe was still involved in the projects by supplying the turbines, yet would no longer be the project owner. Typhoon changed the name of the two projects (two separate licences) to one project named, Gemini (twins in Latin).

Environmental impact study and an Environmental impact assessment

On October 30th, 2011, the Ministry of EL&I (initiator) submitted the project initiation to perform an Environmental Impact Study (EIS) for all cables and pipes in the Waddenzee. This study would review the overall impact of different upcoming projects in that area, including the electricity cable(s) from Gemini to the coast. Short after that, on December 6th, the Ministry of EL&I also submitted the project initiation to perform an EIA study on the Gemini Cable (ARCADIS performed both the EIS and EIA study).

ARCADIS would perform the Environmental Impact Study and the Environmental Impact Assessment. Typhoon was not in authority for this study, although they became more and more involved. The study for the cable eventually changed in a study for the whole Gemini project. The main reason was that Typhoon wanted to change some technical aspects of the farms, like the turbine. Typhoon decided, due to a combination of reasons, to choose another party than BARD Gruppe for this which resulted in requiring a new Wbr (Wet beheer rijkswaterstaatwerken) application as well as new adjustments in the former EIA study performed by BARD Gruppe.

Procedure Steps EIA Gemini

Below the procedural steps for the second EIA study for Gemini are listed:

- 24 November 2011: Notification in Gazette of the start of the procedures
- 25 November 2011 till 5 January 2012: Public review
- 24 November 2011: Consultation government on range and detail level EIA
- 15 March 2012: Advice on range and detail Level EIA
- 15 February 2013: Notification in Gazette of the EIA
- 15 February 2013 till 29 March 2013: Public review EIA
- 23 January 2013: Consultation of Advice Commission EIA
- 15 April 2013: Provisional advice Commission EIA
- 13 June 2013: Final advice Commission EIA.

Further project development

After the second EIA study was performed (one EIA study for both locations) for the location, the project evolved. The construction of the first substructures started in the year 2015. Eemshaven, a harbour located in North Holland, is where all construction occurs. Eemshaven will also be the place where the transmission line from the offshore wind farm will land and be transformed to the grid. Now Typhoon is no longer owner of Gemini, it has four new shareholders:

- Northland Power, Canada's Sustainable energy company, (60%)
- Siemens Wind Power, wind turbine constructor (20%)
- Van Oord, maritime constructor (10%)
- HVC, sustainable energy waste and energy company, (10%).

The expectation is that in 2017, the generation of electricity by Gemini, the offshore wind farm, will start.

3

Conceptual Model

3. Conceptual Model

In this chapter, we will look at what the literature reveals on the subject in order to theoretically understand the interaction between the EIA and the public debate. This chapter will first elaborate on the research perspective that has been carefully selected, namely the process perspective. In this research, process is defined as: a longitudinal sequence of events (Boons, Spekkink, & Mouzakitis, 2011). After that, an explanation follows on what events (2.2), sequences (2.3) and patterns (2.3) are, since these are key in process research. In section 2.5, the conceptual model for this research will be established step by step based on the Walkers et al. (2011) framework. The conceptual model will be used for the analysis of the interaction between the EIA and public debate in chapter 6.

3.1 Process Research

This research can also be described as a process research. The main aim of process research is to understand how things evolve over time and why they evolve in such way (Van de Ven & Huber, 1990). In process research, narratives are broken down into smaller parts of data using the following sequence of questions: what happened and who did what when? The answer to the question “what happened” represents one or more *events* (Langely, 1999). The answer to the question “who did what” gives insight into the *activities* that took place and who was involved in them. Answering the question “when”, helps to pinpoint the moment *in time* at which crucial *decisions* were made. In this research, we try to understand the interaction between the EIA and the public debate through time. The interaction between the EIA and public debate evolves due to events, activities and decisions.

What makes that the relation between the EIA (formal assessment) and the public debate (informal assessment) can be defined as a process? Firstly, there is interaction between the EIA and the public debate which is shaped due to communication among groups. This communication can be interpreted as a constant negotiation. On both sides, values can change, converge or diverge, as a result of the exchange of thoughts and opinions between individuals and groups. The communication influences the way of thinking, actively or non-actively (Devine-Wright & Howes, 2010) and by that the activities (the “what?”). Secondly, the relation is dynamic and not static. It changes over time (the “when?”), due to the different moments of decision-making and communication among groups (the “what happened?”). There are one or multiple acts of choice, a moment or moments in an on-going process of decision-making, where the decision-maker chooses a given course of action from a set of alternatives (Harrison & Francisco, 2011; Kolhoff et al., 2009; Runhaar, Dieperink, & Driessen, 2006). Lastly, the contextual influence can change as a result of decision-making outside the process or by (un)intended events that shape beliefs or attitudes. The communication, the dynamics and the contextual influence are all important variables that influence the interaction between the EIA and the public debate, making it a process. By creating insight in these aspects, it can help us unravelling the questions: what happened and who did what when.

There are diverse definitions for “process”. In this research, process is defined as: a longitudinal sequence of events (Boons, Spekkink, & Mouzakitis, 2011). The process perspective recognises a process as a potentially important cause of activities and outcomes. With a process research perspective, it is possible to look at what collected data will reveal about the process investigated in comparison of what we theoretically could expect to be part of the process (Boons, Spekkink, & Mouzakitis, 2011). With a process research, one produces a form of story of the process investigated. It divides the process into smaller part, called ‘events’, and explains the sequences of the events and how they lead to certain outcome(s) (Langely, 1999). Understanding patterns of events is therefore key in process research.

To gain deeper insight in the interaction between the EIA and the public debate, a suitable perspective is required. Interaction between two units is commonly seen as a black box or a complex unit (Hernes, 2007). However, when you look at parts of the unit, it can reduce the complexity. In this way, using separation, interacting parts can be monitored for some of their lengths which yields more insight on how parts of the interactions evolve and connect. In short, a perspective that focuses on interaction, movements and the journey. Therefore, the *process perspective* has been selected.

3.2 Data composed of Events

Process theory analyses sequences of events that lead to a certain outcome (for example: do A, then B to get to C) (Langley, 1999), see Figure 11. Understanding patterns of events is key to developing a process theory. The events contribute to a high degree to the continuity and change of the object under study. They are at the heart of the explanation of the process (Sminia, 2009)(Peterson, 1998)(Poole et al. 2000). To observe the process, a deeper study needs to be performed on the sequence of events that lead to certain outcomes in the process since events are essential to understanding the discursive dynamics of the process.

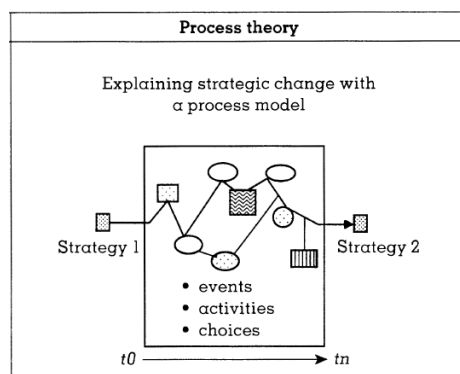


Figure 11 Process theory, provides explanations in terms of sequences of events leading to an outcome (e.g., do A and then B to get C) (Langley, 1999). The figure is an illustration of a sequence, which contains various events, activities and choices (different forms and shading). They all occur over time which eventually results that strategy 1 through events, activity and choices over time develops to strategy 2.

There are different kinds of events. An event may include for instance a merger, a decision, a meeting a conversation. For example, in this research, it could mean that a party decided to change the location of an offshore wind farm; a decision. Or that two parties decided to cooperate with one and other; a merger.

It is important to realize that events are not the same as variables. A variable is an entity and an event can influence the state of this entity. Furthermore, it can be important to identify the effect of say a contextual variable on the evolution of events (Langley, 1999). That is why this research also looked at the role of context on the evolution of events.

An event can be seen as a *theoretically significant occurrence* (Poole et al., 2000; Hull, 1975). To analyse process data, it is important to conceptualize events (Boons et al., 2014). Research requires that empirical evidence about events sequences need to be matched with theoretically derived process patterns. Relevant event types should be identified based upon a conceptual framework, to study the decision making leading up to, and within the EIA as well, and interaction with the public debate. The conceptual model forms the basis for selecting event types that will be identified as relevant for the research.

Next to the type of events, the ordering and frequency of interaction between the events are important in order to identify “typical sequence” in events across cases (Langley, 1999) and to develop event-sequence typologies to further understand the process researched.

3.3 Link Events in Sequences

The conceptual framework also specifies the mechanisms that link different types of events to sequences (Abbott, 1990). Aside from identification of a relevant type of event, it is important to use a theory to specify in which way events are linked into sequences (Abbott, 1990). Van de Ven and Poole (1995) make the distinction between four types of linkages; life cycle, teleological, dialectical and evolutionary processes.

- Life cycle: an entity goes through distinct stages of development maintaining its own identity following an internal logic that governs its progression
- Teleological: an entity develops a common goal in an identifiable manner and will go on to meet the requirements and constraints associated with this end state
- Dialectical: process is fuelled by some form of contradiction, which results in conflict that must be resolved
- Evolutional: change due to some form of external pressure accompanied by the mechanism of variation, selection and retention.

The type of linkages in this research can be identified as a combination of the dialectical and the evolutionary process. It can be identified as dialectical, because during the process contradiction (in different forms) can arise between the EIA and the public debate. For example, when in the EIA study a value is ranked as less important whereas in the public debate, this value is ranked far more important. This contradiction can result in conflicts between two parties. In order to resolve the conflict, a dialect between the two parties can establish a resolution. Correspondingly, it can be identified as evolutionary, since a process is shaped due to communication and changes over time. The communication is a mechanism of variation, selection and retention, which result in process changes over time. For example, the communication between the parties involved in establishing the EIA study and the public. There are numerous moments in time at which the parties communicate. This communication can lead to changes in the EIA study or changes of opinions among the public, which can then change the process. This makes it an evolutionary process. So the type of linkages can be classified as dialectical and evolutionary.

3.4 Patterns

A sequence of events can be described as a pattern. Process theory helps the researcher to understand patterns in events. Therefore, it is key for process theory to conceptualize the events so that patterns among them can be detected (Langley, 1999). Patterns can have a wide variety among them. However, the most common pattern found in the literature is the linear sequences (Langley, 1999). In this research, the aim is to detect the patterns in order to test the theoretical explanation of the interaction between the EIA and public debate and to examine whether the sequences are random, chaotic or have a more predictable sequence (Langley, 1999).

To sum up, this research will use the process perspective to form a story, an overall event sequence, to analyse the decision-making process between the EIA and the public debate. The definition for process used in this research is a longitudinal sequence of events. The events are theoretically significant occurrences with two types of linkages, dialectical and evolutionary. In the overall events, sequences of events and patterns will be identified in order to test the theory. Finally, a process model will conceptualize the strategic change of the process over time.

In the following section, a conceptual model will be established based upon what is found in the theory. From the conceptual model, the event types can be selected and categorized, as the expected pattern among the events can be identified. This makes it possible to a) analyse the process by investigating the patterns against what theoretically can be expected, b) to examine patterns of change to analyse the interaction and c) to analyse the mechanisms behind the occurrence of the patterns.

3.5 Theory used to construct the conceptual model

3.5.1 Walkers framework

Based upon the method of Walker et al. (2011), Figure 12, a conceptual model will be established. Walker et al. (2011) developed a method that attempts to represent public responses to large-scale, developed renewable energy technology developments. Their model aims to descriptively and explanatorily conceptualize how interaction between technology promoters and local public is shaped by the elements and processes involved. This model shows that there is interaction between the technology promoters and the public. It also shows that there is a dynamic aspect, because both parties form expectations, which are followed by actions. Lastly, Walkers et al. model shows that the process takes place within a context that plays a role in the interaction and dynamics as well.

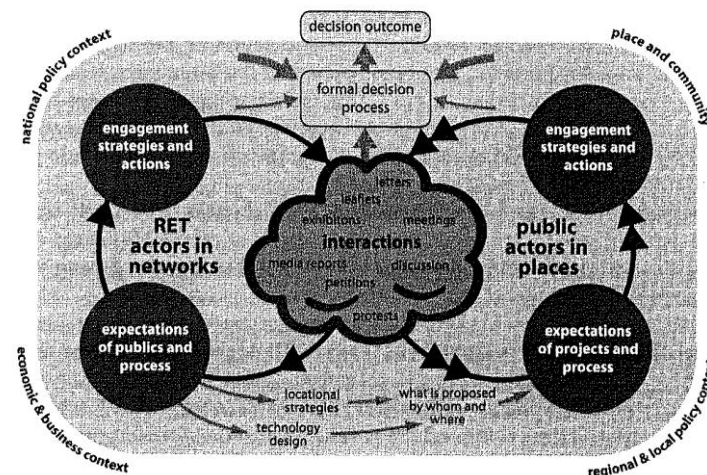


Figure 12 Walkers framework et al. (2011), representing public responses to large-scale, developed renewable energy technology developments.

Walkers framework et al. (2011) is not a framework that states how interaction should take place or how engagement should be practiced. They developed the framework based upon ten quite comparable RET (Renewable Energy Technology) cases located in the United Kingdom. Two of those cases were offshore wind farms namely, Gwynt y MOR (Wales) and Lincs (England). Other cases were about onshore wind, bioenergy and the marine energy sector.

The choice for creating a conceptual model based on the method of Walker et al. (2011) is motivated by the fact that it displays three important aspects: the process (explained in section 3.1), the dynamics and the interaction. The interaction aspect looks and focuses on the diffusion of knowledge and application (Chen & Huang, 2007). It looks at:

- How relationships evolve over time
- The variation in the nature of relationships in different circumstances
- The atmosphere in which interaction takes place
- Contact patterns between the two parties (or here two aims)

- The bonding which occurs between the companies (here the binding between the two aims) (Turnbull et al., 1996).

The quality of the interaction depends on the adaptation of two systems (Cleeremans & Jimenez, 2002) which is highlighted with the dynamic aspect where they look at the way systems are able to adapt to one another (Cleeremans & Jimenez, 2002).

For the reason that this method represents all three aspects, it is not the same as other methods. That is why the conceptual model is based upon the Walkers method. To create a more theoretical understanding of the conceptual model, it will be demonstrated step by step; introducing the different parts of the model and explaining what it represents. The first step is to explain the interaction between the EIA and public. This is then followed by an explanation of the dynamic aspect within the process and, lastly, by the different role(s) of contextual influence on the process.

3.5.2 The Interaction Aspect

In the process, there is (main) interaction between the EIA and the public debate and there is interaction between actors within the EIA or public. Both will be explained below.

3.5.2.1 Interaction between the EIA and Public Debate

The main interaction between the EIA and the public has two directions. The interaction from the EIA toward the public and the other way around. For example, the approval of the public regarding a project holds different requirements and conditions (Leknes, 2001). In the same way, the EIA holds conditions and requirements that have to be legally fulfilled. Therefore, decision-makers obtain information on potential impacts for the different project alternatives (Leknes, 2001). The information contained within the EIA can become part of the public debate, since the EIA contains knowledge and understanding of the potential impacts (Beattie, 1995). The expertise in the EIA may be effectively used in the opposition or mitigation of the public debate and cannot be overlooked, this represents one direction. On the other hand, the public controversy is a process of the dialogue among and by the public actors. This dialogue is an important source of information and may be effectively used in the EIA process by decision-makers. So the second interaction is from the public debate toward the EIA.

3.5.2.2 Interaction between actors

Besides interaction between the EIA and the public there is also interaction between actors and events. This interaction can be intended or non-intended. Intended interaction can be described as interactions that could be expected beforehand, whereas non-intended interactions are unexpected. The process contains both and it is essential to monitor them. The EIA knows a formal procedure containing multiple steps. Though the procedure is unique in every country, they all have one or more moments in time, (mostly) mandatory by national law, when the plans or the EIA contents are made publicly available. Those moments in time cause an interaction between actors, which is intended. Not only these intended interactions will be observed, but it is also required to observe the non-intended interactions, because they can also result in a choice or a change in the relation, expectations or actions of actors which can create insight in the interaction between the EIA and the public.

Finally, the means of interaction between actors is important. Interaction between actors will occur at different moments in time. These interactions may take place by means of different resources such as letters, media reports, protests, discussions, meetings, petitions, etc. (Peterlin, Kross, & Kontic, 2008). Creating insight in the way of interaction and the reaction on it can yield useful information.

3.5.3 The Dynamic Aspect

In Walker's framework, the dynamic aspect is represented by two circles. Each process circle consists of moments where expectations are formed and moments where actions are established. For example,

there is a project X. The public will form expectations regarding project X. After expectations are formed at some moment in time, the public will decide to engage in actions regarding project X. These will be based upon the expectations formed earlier. This process of forming expectations and establishing actions by a group of actors is the dynamic aspect of a process. In the conceptual model we want to include this dynamic aspect as well. That is why we will use two process circles. One representing the actors involved in the EIA and one representing the actors involved in the public debate. Both circles will contain expectations and engagement actions (see Figure 13), what we mean by that we will explain below.

3.5.3.1 Expectations

Actors will form expectations during a project. Actors can join at some moment in time during the EIA assessment or the public assessment. When they join one of them, they will form expectations regarding the process, public or project depending on which side they join.

Actors joining in the public assessment, will form expectations around facets as the form or impact of the project, the project developer, the process and the distribution of benefits. Expectations will arise on how much the project will influence the local environment. Also, the public may have expectations about how the project developer will behave and act. The expectations about the process are related to communication: 'How is the public involved and what is fair?'. Lastly, there are expectations concerning the distribution of the benefits and cost for every actor in comparison with the other actors which is an important aspect for the formation of public controversy (Walker et al., 2011).

Actors joining in the EIA assessment, who develop or make decisions regarding the EIA, also develop expectations. This includes expectations on the process, the project, the implementation, the choice alternative, the reaction on project effects or on the EIA contents. They form expectations of how the public might respond to the EIA development and contents. For example, they will form expectations on how the public might react on the favourable alternative described in the EIA. It is a complex network of factors that influence the perception, attitude, policy and decisions (Pettersson, 2006).

3.5.3.2 Engagement actions

Provided that actors will form expectations, it follows that a form of engagement action will occur. Therefore, when expectations change, the course of engagement action can change as well. This process of forming an expectation and creating an engagement action can be by actors joined in the EIA assessment or in the public debate. For example, when the public does not want the construction of a building in their neighbourhood, because they formed the expectations that this might harm the population of rabbits living there, they might response with a protest which is an engagement action.

Combining the expectation and engagement

The dynamic aspect is formed by expectations and engagement actions that represent the stakeholders dialogue. There are two separate dialogues, however, at moments in time the two interact. This will influence the process again. New expectations and engagement action will be formed due to this interaction. This makes that this process is not static but rather dynamic. The best way to visualize this is as two separate cycles, see Figure 13.

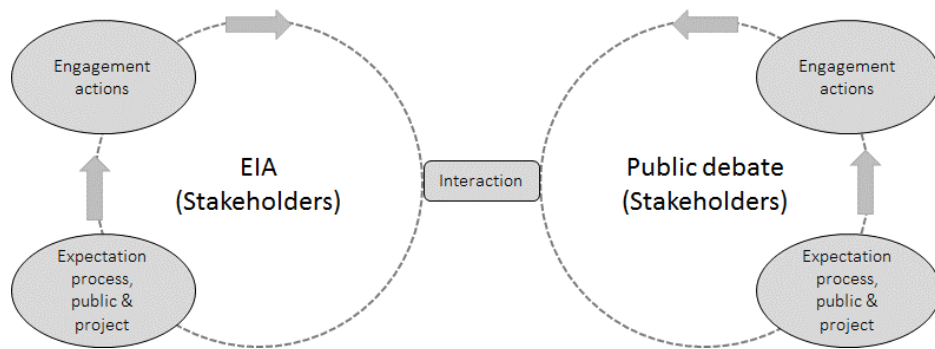


Figure 13 Combining the interaction and dynamic aspect in the process.

3.5.4 The Contextual Influence

Walker's et al. model shows that the process takes place within a context which can influence the different parts of the process (Walker et al., 2011). Turnbull et al. stated that interaction takes place within a context and in order to understand the context a focus on this aspect is recommended. Scholars emphasize that when the EIA is composed, one must be aware of the context in which it operates (van Doren, Driessen, Schijf, & Runhaar, 2013) (Emmelin, 1998). Chep (2001) for instance, emphasizes the importance of studying the context in which the EIA system functions so that strengths and weaknesses can be understood better. An analysis of the context allows EIA practitioners to have a realistic expectation with respect to the effectiveness of the EIA (van Doren et al., 2013).

Above in Figure 13 the relation between the EIA and the public debate has been visualized. Nevertheless, it is equally important to create understanding on the variables that hinder or generate the dynamics of the system since they influence the evolution of events (Boons et al., 2011). These contextual variables remain excluded from the theoretical framework, because their connection remains unexplored (Boons et al., 2011). That is why we want to include the context in the conceptual model.

The context is not static but can change during the length of the process. This makes that at a point in time say "X" the context is "Cx" and at time "Y" the context is changed toward "Cy", see Figure 14. So the context is changing and by that it is dynamic too.

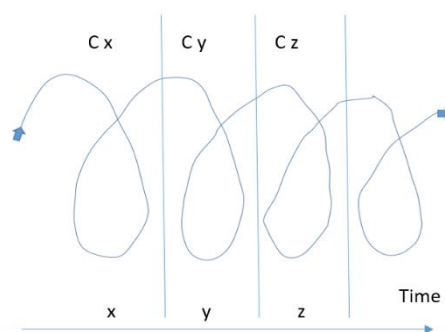


Figure 14 Contextual change during the length of the process. At moment in time x the context in which the process occurs is Cx, while at moment y the context is Cy. Cx is not the same as Cy, there is contextual change during time.

There are different contextual variables that can influence the evolution of events. There are different researches done on contextual influence. In this research we will look at two types of contextual influence. First we have contextual factors that can influence the EIA and in which it operates, described by Kolhoff et al. (2009). The second type are the contextual dimensions who can influence the process patterns described by Walker et al. (2011). We discuss both of them briefly below.

Kolhoff et al. states that knowledge of the context in which the EIA operates is helpful in identifying the factors important for its actual and potential effectiveness. Kolhoff et al (2009) identified four context factors, 1) the legal framework, 2) the political/administrative system, 3) the social economic system and 4) the natural environment (Kolhoff et al., 2009). In chapter 2 we already shortly discussed the legal framework, where the legislation is concerned as well as the political/ administrative system which is addressing the type of political system, division of power, the independency of judiciary and the free flow of information. These two factors are more static for the project and that's why we will not include them in our list of contextual factors, which might influence the process patterns. This also applies for the natural environment factor, since it is about the state of the environment which is also static.

Walker's et al. model shows that the process takes place within a context which can influence the different parts of the process. The method includes four different dimensions; 1) place and community, 2) regional and local policy, 3) national policy and 4) economic & business context. Place and community could influence the way how the public shapes or develops its expectations or engagement strategies. For example, more place attachment followed in some cases to more opposition toward offshore wind farms. Policy context can be important determining the drivers locally or nationally while economic & business would shape the engagement, technology and locational strategies of renewable developers. The dimensions of Walker are all dynamic and can change during the project and that way influence process patterns.

By combining these factors of Walker et al. and Kolhoff et al. there are seven different contextual variables, which are used to analyse the contextual influence on the process patterns Table 4.

| <i>Context variable</i> | |
|--|--|
| <i>The National Policy</i> | Has influence on the context in which the process operates like; <ul style="list-style-type: none"> • National policy tools that drive or support the project development, • National strategies that determine the process, • Or National boundaries effecting the decision making, • The legal framework in which the EIA operates; <ul style="list-style-type: none"> ◦ International conventions on EIA, ◦ Legislation on the environment, sector or on civil society rights. |
| <i>The Local Policy</i> | Has influence on the context in which the process operates, like; <ul style="list-style-type: none"> • Local policy tools that drive or support the project development, • Local strategies that determine the process, • Or Local boundaries effecting the decision making. |
| <i>The Political/Administrative system</i> | Has influence on the context in which the EIA operates, like; <ul style="list-style-type: none"> • The political system type, • How the division of power is between the executive, legislative and judiciary body, • The level of judiciary independency, • And if there is free flow of information. |
| <i>Socio-economic system</i> | Has influence on the context in which the EIA operates, like; <ul style="list-style-type: none"> • The economic situation, • The culture concerns for participation, • And the knowledge infrastructure. |
| <i>Economic and Business</i> | Has influence on the context in which the process operates, like; <ul style="list-style-type: none"> • The shaping of the strategy regarding things like the engagement, technology or location. |
| <i>Place and Community</i> | Has influence on the context in which the process operates, like; <ul style="list-style-type: none"> • The attachment of actors with the place/ location, • The level of actors prosperity, • The level of more or less recent incoming of actors. |
| <i>Natural environment</i> | Has influence on the context in which the EIA operates, like; <ul style="list-style-type: none"> • The state of the environment and the impact of the sector on it, • And environmental problems or disasters. |

Table 4 Contextual variables which are used for the analysis in this research based on Walker et al. 2011 & Kolhoff et al. 2009.

4

Method

4. Method

As indicated in the previous chapter, process theory has been applied conducting the research at hand. To analyse the process, data of the process needs to be collected and then a proper method is needed to analyse the process data. In this chapter, we elaborate on the collection of the process data and case study type. After that, the method “Event Sequences Analysis” will be introduced with further elaboration on the suitability and analysis steps. This chapter closes with the type of interviews that have been used and why.

4.1 Process data

Process theory is concerned with understanding two things. Namely, “how things evolve over time” and “why they evolve in this way”. It is about what happened (the events), who did what (activities) and when (choices made in time). Insight in those aspects gives use more understanding of the process and the process patterns. Process data is difficult to analyse because first you need to deal with many sequences of events (Langley, 1999). Secondly, the boundaries of the events/sequences are more often than not unclear. Thirdly, events vary in terms of precision, duration and relevance. Fourthly, process data also contains changing relationships, thoughts, feelings or interpretations. Finally, in the analysis of the data, the context needs to be taken into account because as said before, it can affect the sequences of events. The combination of quantity, non-static, human factors and unclear boundaries makes process research harder to objectively and factually analyse.

Process data is a combination of historical data collected from analysis of documentation and real time data retrieved from interviews. The historical data will, as said in chapter one, be collected using the case study methodology as well as interviews. Both methods will be discussed below to verify the choice.

4.2 Case study

A case study is preferred when contemporary events are examined in which behaviour cannot be manipulated (Yin, 2003) because you’re dealing with historical data. For example, when performing experiments, the investigator may manipulate the behaviour. This research investigates how the EIA and the public debate interact. The researcher has no control of contemporary events, making it a legitimate research strategy.

4.2.1 Case study type

There are different types of case studies. Yin’s theory will be used here to define the type of case study used in this research. Yin (2003) distinguishes three types of case studies; exploratory, descriptive and explanatory.

- Exploratory: to explore a phenomenon in data serving as a point of interest for the researcher
- Descriptive: to describe a phenomenon that occurs within the data
- Explanatory: to examine the data superficially or in depth to explain the occurrences in data.

Process data tells a story. It is therefore required that events are explained and patterns among them are detected. From that point of view, this case study can be described as explanatory as it will examine a phenomenon among the data and try to explain its occurrence.

For an explanatory case study it is possible to study only one case (Figure 15) (Perry, 1998). In this research, one case, Gemini, will be studied in depth to analyse the interaction between the EIA and the public debate.

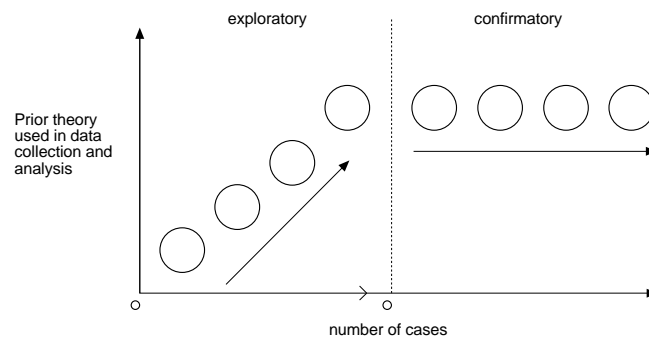


Figure 15 Number of cases for exploratory or confirmatory analysis, (Perry, 1998).

The project Gemini is located in the Netherlands. The Netherlands have been selected, due to the practical reason that this study was performed at ARCADIS Netherlands, therefore allowing availability of more insight information on the cases performed by ARCADIS Netherlands. Furthermore, insight into the influence of the public debate may be beneficial to service ARCADIS and similar institutions.

After the country was selected, the project needed to be selected based on two criteria. The first criterion was ARCADIS's involvement in the project; they could provide more background information on the cases which would not be publicly available. The second criterion for selection was that the project was still in development or nearly finished. Consequently, it would not only involve historical data but also present data. These two criteria made that only one project was suitable in the Netherlands, namely Gemini.

4.3 Event Sequence Analysis

Event Sequence Analysis is a method that provides the tools for systematically identifying and comparing specific sequences of events (Boons et al, 2014). Analysis of process data requires a means of conceptualizing events and detecting patterns among them. The challenge lies in going from shapeless event data toward statements that are understandable and potentially useful to other research. Going from the raw data toward patterns is challenging. Event Sequence Analysis is a method to define events, the logical relation between events and how each event enables and expands other events. Also with ESA it can be investigated how patterns arise, defining the dependent variables and the meaning of these patterns for the future (Abbott, 1995).

The process data produces a story and reveals the observed process and what theoretically can be expected to be part of the process. To analyse the process data, the events (theoretically significant occurrences) and the patterns in which they occur need to be observed. A method is needed which does not only show the events and patterns but also shows how events change the process and what influence an event has on patterns in the process.

There are different methods to analyse process data and events. For example, there is the method "Event History Analysis". This method looks at events occurring along time series (Farm & Russo, 1996). However, the importance of the research is to get a better understanding of the process and how events lead to outcomes in the process. The events contribute somehow to the continuity and change of the object under study and are at the heart of the explanation of the process (Sminia, 2009)(Peterson, 1998)(Poole et al. 2000). The Event History Analysis gives less insight in this process. Therefore, another method is needed that shows insight in the event sequences. The method that does fulfil this requirement is "Event Sequence Analysis".

Two additional projects, Norther (Belgium) and Nordsee Ost (Germany)

In this study, two additional projects have been studied as well. In order to reflect on the findings of Gemini and to get examples of how stakeholders in other projects address or handle different aspects that occur during a comparable project as Gemini. This reflection and examples will be found in chapter 6. Below a short elaboration of the selection of the two projects is given with some main background information. More background information on every project can be found in Annex V and Annex VI.

The two additional projects are Norther, located in Belgium, and Nordsee Ost in Germany. This selection of Belgium and Germany is based upon the overall study result of the offshore wind development in Europe (see Annex I). The first selection was based on the amount of offshore wind development in the countries. Second, the potential of offshore wind energy to enlarge the renewable energy (Bilgili et al., 2011; Mani & Dhinra, 2013; Mathiesen, Lund, & Karlsson, 2011; Meyer, 2007; & Schaechtele, 2012). Countries that had almost no offshore wind or would not invest in offshore wind development did not meet the selection. For the remaining countries (Germany, Belgium, Denmark, UK, Sweden, Ireland), the total offshore wind development was observed which showed that Denmark is front-runner for offshore wind energy and has the most experience of all; they adjusted their offshore policy framework a long time ago. The United Kingdom has also shown a tremendous growth in offshore wind over the last years. Both countries being such front-runners, having adjusted their policy a long time ago, they were not selected.

After careful consideration, Germany and Belgium were selected. In consultation with EIA experts (from ARCADIS), they pointed out that these two countries differed in their EIA processes, which makes it interesting to study the role of the context. Secondly, both Belgium and Germany border with the Netherlands. Therefore, the role of geographical differences influencing the project and thus the process will be less. Lastly, Belgium and Germany have not reached their planned installed capacity yet, just as the Netherlands.

In Belgium and Germany, ARCADIS was involved in two projects, Norther and Nordsee Ost, a criteria which also applied for Gemini. The table provides a short overview of information regarding the case study Gemini and the projects Nordsee Ost and Norther.

| | Gemini | Nordsee Ost | Norther |
|----------------------------------|-----------------------|------------------------------------|--------------------|
| <i>Developer</i> | Van Oord nv | RWE Innogy | SA Norther |
| <i>Owner</i> | 4 owners | RWE Innogy | Elicio nv & Eneco |
| <i>Region</i> | North Sea | North Sea | North Sea |
| <i>Capacity</i> | 600MW | 295.2MW | 300-350MW |
| <i># turbines</i> | 150 | 48 | 44-58 |
| <i>Turbine model</i> | SWT-4.0-130 (Siemens) | 6.2M 126 (Senvion) | not decides |
| <i>Turbine height</i> | 154m | 153m | |
| <i>Rotor diameter</i> | 130m | 126m | 150m |
| <i>Foundation</i> | Grounded: Monopile | Grounded: Jacket | Grounded: Monopile |
| <i>Area</i> | 68km ² | 36km ² | 38km ² |
| <i>Depth</i> | 32-34m | 22-25m | 13-26m |
| <i>Distance shore (reported)</i> | 85km | 57km | 24km |
| <i>Distance shore (computed)</i> | 70.2km | 51.4km | 24km |
| <i>CO2 reduction</i> | 858830 tonnes | 422545 tonnes | 500984 tonnes |
| <i>SO2 reduction</i> | 19973 tonnes | 9827 tonnes | 11651 tonnes |
| <i>Expected life</i> | 20 | 25 | |
| <i>EIA finished</i> | October 2012 | Different phases 2004/2009/2012 | January 2013 |

Text box 1 Introducing two additional offshore wind projects.

Event sequence analysis involves the construction of event sequences from the process data where the events are coded to indicate their relevance to the predefined theoretical categories (see chapter 3). A broad variety of techniques is available to analyse the coded process data. This can be done for one case or across different cases.

The ESA method knows five steps:

1. Identification of the central subject and relevant types of events
2. Creating a longitudinal data set
3. Coding the incidents and grouping the data to events
4. Pattern identification, comparing sequences using theoretical framework or finding similarities among sequences
5. Relating patterns to outcomes.

All five steps are performed on Gemini and will be described below.

4.3.1 ESA steps

Step 1 : Identification of the central subject and relevant types of events

Performing an event sequence analysis it is key to identify one central subject and relevant types of events. A central subject is an entity of any kind; this may be a group of actors, an individual actor, a social movement or a machine. The events are significant changes which the central subject has gone through. In this case, the central subject is the interaction between the EIA and the public debate. The central subject can be represented by the conceptual model described in chapter 3, see Figure 16. This conceptual model forms the basis for how events (existing of one or more incidents) will be coded to a type of event in a later stage of the analyses, namely step 3. The conceptual model also specifies how the events are linked to each other in sequences (step 4).

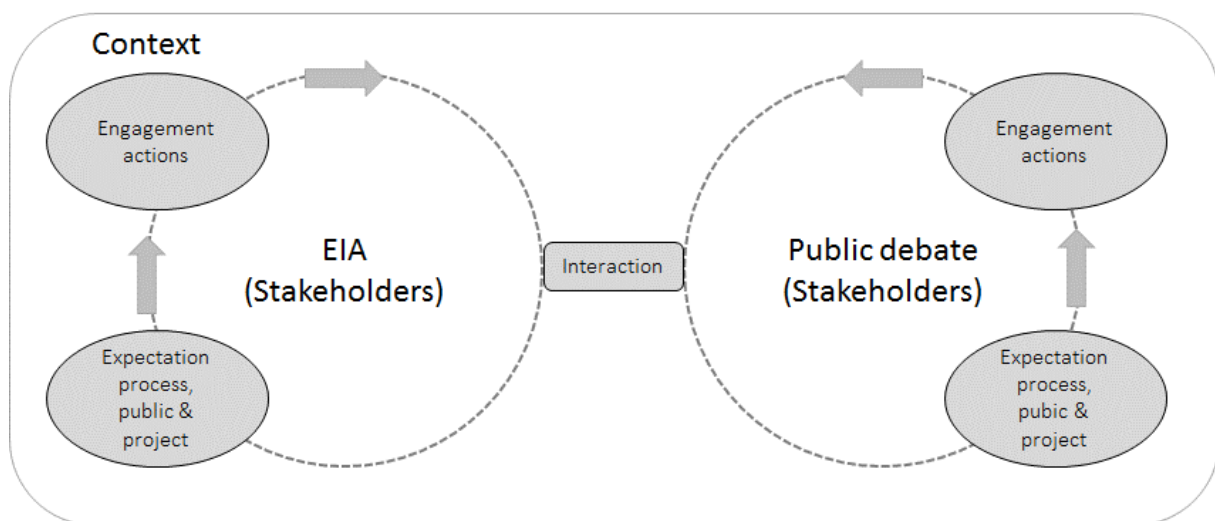


Figure 16 Conceptual model forming the basis for the type of events for the ESA.

For this research the *central subject* is the community of actors who are involved in the Gemini project. There are formal assessment, informal assessment and contextual event types. We chose to classify the EIA as a formal assessment because this definition also includes relevant steps/events/decision leading up to the EIA proper. “Formal assessment refers to the procedures and guidelines which are part of legally established governance structures that aim to evaluate the desirability of (a decision on) an energy project” (RESPONSE, 2014). In this research, we also refer to the procedures, guidelines and the aim to evaluate the desirability, since this all influences the central subject and is broader than EIA alone. That is why all relevant steps/events/decision leading up to the EIA are typed as formal assessment events. For the public debate, we also chose a broader definition, “Informal Assessment”, as said in

chapter 1 the public debate is also an informal assessment. Though the definition of the informal assessment is broader, events are classified as informal assessment.

The research approach used here is based upon Poole et al. (2000) and Boons et al (2014). Their approach involves the construction of an event sequence dataset. Process data are recorded briefly, chronologically ordered and subsequently coded to indicate the relevance to predefined theoretical categories. This results in a data set that may be used as input for statistical methods for the identification of temporal patterns in the process data.

Step 2 : Creation of an event sequence data set

Providing ESA longitudinal data on the specific subject is needed. The dataset will contain raw data, *empirical observations*, that will be ordered by date. The empirical observations are called incidents. In the data set, the incident with date, actor(s) or object(s), the action (interaction) and the source of the information will be reported. By doing so, an empirical and chronological data set will be developed for the main case. The whole data set for Gemini can be found in Annex IV. (For Nordsee Ost in Annex V and Norther in Annex VI).

For collection of data, news items from data bases; LexisNexis, Energia and Howards Home (ARCADIS database for news items) have been used (ranging from 2006 till 2015). Other sources have been used as well to collect additional incidents, such as governmental documents and a few additional web pages. This will be reported in a logbook. To validate the data, interviews were held among involved stakeholders, who had an active role in the Gemini project.

Step 3 : Coding and grouping the data

After collecting data, the incidents needed to be coded based upon the conceptual model. Once all incidents have been coded, they are grouped into events: *theoretically significant changes*. A group of incidents will form an event (for example 1,2,3,... number(s)). Eventually, all relevant incidents are coded towards events. Note that one incident may be an indicator for more than one event. What is left is a set of different events types. Figure 17 shows a clarification of the relation between the empirical observations; “incidents”, and the theoretically significant changes; “events”.

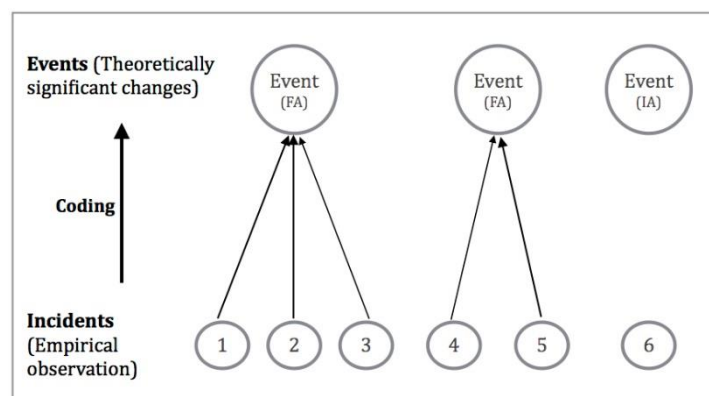


Figure 17 Clarification of the relation between the incidents and the events.

So first the incidents are coded to a type. After that, the same type of incidents were coded to events. There are three main event types as mentioned above:

- Formal Assessment
- Informal Assessment
- Context Factors

These three main event types are further sub-classified. Table 5 gives an overview of the different types in which the incidents, and thus the events, will be classified. For every type, an event example is given (from the Gemini project) and the matching code that will be used later on.

| Examples for the types of events | Description | Example of events | Code |
|----------------------------------|---|--|--------|
| Formal assessment | | | |
| EIA | Activities by stakeholders, aimed at the formal obligation/ procedural steps of the EIA. | The EIA study, performed by ARCADIS, for Gemini farm and its cable is published. | FA_EIA |
| Expectations | Expectations by stakeholders of the formal process or expectation regarding the public on how they think about the formal process. | A news item discloses that Typhoon is motivated for the project by investing in it and performing an EIA for Gemini. | FA_EX |
| Actions | Engagement actions by stakeholder aimed at the formal process or regarding the expectations of the public on the formal process. | A change in turbine type and the construction type. | FA_AC |
| Informal assessment | | | |
| Expectations | Expectations of stakeholders in the IA on the process and project. | A news item says that the EIA study gives an impression of pirate stories. The EIA discloses information on shipwrecks, bombs, etcetera. | IA_EX |
| Actions | Engagement actions of stakeholders in the IA aimed at process and project. | Belgium and Dutch coast communities come together to form a final opinion towards offshore wind farms. | IA_AC |
| Context factors | Activities that influence interaction between the formal and informal assessment. (Based upon Walker et al. 2011 & Kolhoff et al. 2009) | The minister of Economic Affairs (Maxime Verhagen) decides that sustainable energy on the grid has priority above other energy sources on the network. | CO |
| Stakeholders | Stakeholders enter or withdraw from the process. | Typhoon sells the last shares in the project. Northland takes the shares over from Typhoon. Typhoon has withdrawn from the project. | ST |

Table 5 Event types with description and examples.

Time line

The time frame and the duration of the incidents are important, because one incident may imply the beginning of the event, while another incident may indicate the end of an event. Some events may overlap or have different durations. That why the time frame need to be included in the dataset so that it is possible to set the event out on a time line.

Step 4 and 5: Pattern identification and relating pattern to outcomes

After the data of Gemini has been coded and categorized, it can be analysed. First, the sequences are analysed by comparing the founded sequences with the theoretical template/method or in our case the conceptual model to assess the similarities and dissimilarities and to identify the patterns among the sequences. After that, the last step entails the match of outcomes in the process with the identified patterns. This includes identifying the mechanism that drives patterns and how these can influence the process.

4.3.2 ESA data analysis tools

Different tools can be used to perform the ESA. For the visualisation of the identified events, the computer program Gephi (beta) is employed. This program makes it possible to classify the events, draw links between the events, select a group of events (for example which events are linked to one event), and by that making a detail event web visualizing the process and enabling us to show a sequence of events in detail.

By performing this analysis method, sequences between events, the relationship and the interaction between different events will be shown in one figure. This will be represented in an event web, made with Gephi. The event web will provide an overview of all the events, the type of event and how the different events are linked set out on a time line. Figure 18 shows an example of how the event web will look like.

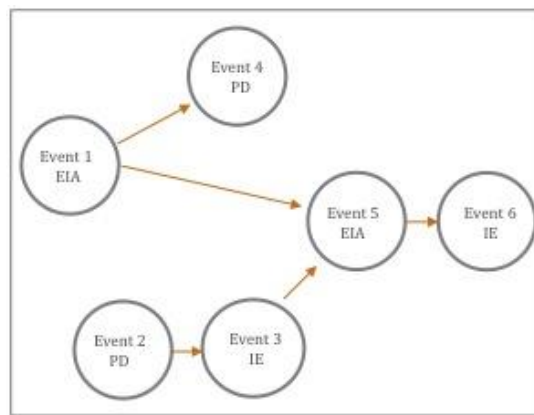


Figure 18 Example of how the relation between the events (in time) will be shown.

4.4 Interviews

In order to get more information of the case study, two types of interviews were performed (Annex II); interviews to gather more current process data on the cases and interviews to test the conceptual model among specialists in the field of EIA and offshore wind policies. The group of interviewees consists of eight stakeholders and specialists who were involved in the projects in either the Netherlands, Belgium or Germany. The interviews were conducted in early 2015.

For the case study, historical process data was collected and utilized into an event list to create more insight in the process. The interviewees were asked how significant the effects of the events were on the process patterns and they were asked to classify them. Additional questions were asked to reveal possibly missing data and to inquire the role of context on projects.

Furthermore, the interviewees were questioned to identify how they viewed the relation between the EIA and the public debate in their country. By showing the conceptual model on top of that, they were questioned whether or not they recognized this process interaction and what they thought of the importance of it. Also, they were questioned whether they noticed any transition over time in the relation between the EIA and the public debate.

Finally, to test our findings and the model, they were questioned whether the conceptualized model gives a good insight in the interaction between the EIA and public debate and if they recognized it in their own field.

5

ESA results for the Gemini case

5. ESA results for the Gemini Case

This chapter will provide the results of the event sequence analysis (ESA). For the reason that this project knows many stakeholders with different roles, interests and influences, these will be discussed first section 5.1. After that, the events represented in an event web will be elaborated on, step by step.

5.1 Stakeholders involved in Gemini

Different stakeholders have been and are involved in the Gemini project. Stakeholders form expectations and engagement actions (see chapter 3) during the length of the whole process. The expectations and actions of stakeholders can result in events. The events are coded as explained in chapter 4. This showed that some stakeholders were more involved in events which were classified as formal assessment events (the EIA) or as informal assessment events (the public debate). Though some stakeholders were more involved in events classified as contextual events.

Consequently, stakeholders could be typed as more involved in events classified as either; formal, informal or contextual and by that had more effect, interest and potentially more influence on that part of the process. Table 6 gives an overview of the main stakeholders involved in Gemini, how interested they were and what their potential influence was on the process. First however, a few stakeholders involved in either formal, informal or context will be specified.

Stakeholders involved in events classified as formal assessment

Stakeholders involved in events classified as formal assessment were BARD Gruppe, Typhoon, Ministry of EL&I and ARCADIS. These stakeholders played some role in the EIA contents, the process, influencing actions or forming expectations regarding the process, project or public opinions. BARD Gruppe played a role at the beginning of the process, because BARD Gruppe was the project owner. After a while, BARD Gruppe was no longer project owner and consequently not involved in the formal assessment events.

Typhoon became the project owner and became involved in formal assessment events. The Ministry of EL&I belonged to this group at a certain moment, when they initiated the environmental impact study (EIS) on the overall cable and pipe study for the Waddenzee and the EIA study for the Gemini cable. Lastly ARCADIS, at a later moment in time, belonged to this group because they performed the EIA studies. These stakeholders were involved or influenced events classified as formal assessment.

Stakeholders involved in events classified as informal assessment

Even more stakeholders were involved or influenced events classified as informal assessment. For example the province of Groningen, one of the expectations they formed during the process was that local employment would rise when Gemini would be constructed. Another example is the fishing industry, expecting that the project would harm business. Of course also the public in general belonged to this stakeholder group. All these stakeholders influenced in some way events that are classified as informal assessment event. However, there were also citizens who submitted viewpoints on the EIA, at that moment they also participated in the formal assessment. This means that stakeholders can be involved in more aspects of the process, it is not static.

External stakeholder

Some stakeholders influenced events classified as contextual events. Events that played some role in the process, however, did not belong to the informal or formal assessment events. These were external stakeholders, because they were not part of the process, however, did influence events who had a role in the process. One of these external stakeholders was the national Government. For example, they

changed the regulations, which influenced a context event. Yet, the Government did not belong to either the formal or informal stakeholder group.

Stakeholder interest and influence on the process

Some stakeholders were more interested in the project than others, although this interest changed for some stakeholders during the project. The influence of the stakeholders was diverse and did sometimes also change over time. Table 9 lists the stakeholders, their main role, interest (high, medium or low) and influence (high, medium or low).

| Main Stakeholders | Description of the role in the project | Interest H: High M: Medium L: Low | Influence H: High M: Medium L: Low |
|--|--|--|---|
| BARD Gruppe | Bard Gruppe was the first owner of the location where the wind farms were to be built. The company is established in Germany and develops the offshore wind farms from beginning to end itself. In this manner they developed the German offshore wind farm Bard. | Begin: H End: L | Begin: H End: L |
| Typhoon | Typhoon is a small company with less than 10 employees. Many first worked for another company, which went bankrupt. Typhoon started as first to search for partners for the farm. In the end they gain full responsibility. After finding sufficient partners Typhoon withdrew from the project. Besides this Typhoon was very involved in the entire project and was responsibility for the success of the project. | Begin: L/M Midterm: H End: L | Begin: L/M Midterm: H End: L |
| Ministry of Economic Affairs (EZ) | Gemini belongs to a project that is regulated in the Rijkscoördinatieregeling. Therefore EZ has ultimate responsibility for the project, their decision-making played a large role in this project. Especially the communication between parties was their responsibility. | M | H |
| ARCADIS | ARCADIS was the company that made the EIA for the area where the cables were to be placed. Their role grew during the process of the project. | Begin: L End: M | Begin: L End: L |
| Van Oord | Van Oord is now co-owner of the farm and is involved in the construction. | H | M |
| HVC | HVC is co-owner of the farm. Officially HVC is a waste management company. | M | L |
| Northland power | This is a Canadian company. They have become the major shareholder of the farm. | M | Begin: M End: H |
| Siemens | Siemens is the supplier of the wind turbines for the farm and is also co-owner of the farm. | Begin: L End: H | Begin: L End: M |
| Germany | Germany has participated in this project because of the fact that a small part of the cable lies in the German EEZ (exclusive economic zone) and among other reasons. | L | L |
| Nature organisation | Nature and wildlife organizations have been involved in the background of the project. | L | L |
| Eemshaven | This is the location where the cables reach land and is also the harbour used for construction on land. The heliport will be realized here as well. | H | L/M |
| EIB | The European Investment Bank has provided the loan for Gemini. | L | L |
| Energy Valley | Energy Valley is a group founded by the Groningen and Friesland provinces. They are involved in sustainability of the environment and the islands. | H | L/M |
| TenneT | Tennet is the owner of the cable and the entire offshore grid. | L | L |
| Fisherman's Association | The Fisherman's Association. They stood up for the fishermen who might be in a disadvantageous position in the area. | H | L |
| Province of Groningen | The province of Groningen claims to be involved in the project because it is in their area. | H | M |
| Ameland | Island, involved as a result of the location near to Gemini. | M | M |
| Schiermonnikoog | Island, involved as a result of the location near to Gemini. | L | L |
| Eneco | Duped, lost the tender for the location. | Start: H | L |

| | | | |
|-----------------------|--|----------|---|
| Nuon | Duped, lost the tender for the location. | Start: H | L |
| Delta | Potential energy client | M | L |
| Greenchoice | Potential energy client | L | L |
| Public (local) | Like the residents of Groningen. | L/M | L |
| Public | Dutch public parties not belonging to the parties above. | L | L |

Table 6 Main Stakeholders involved in Gemini.

5.2 Results of Event sequence analysis on Gemini

An analysis of news items, interviews, intern notations and the Dutch EIA commission site resulted in almost 200 identified incidents. These incidents were coded and resulted in a list of 83 events. Annex III provides an overview of the incidents and the events.

The length of the process is hard to define exactly because it is difficult to establish when it starts. In this research, May 2006 will be the starting point of the process. Gemini's first project, initially called Bard Offshore NL1 and GWS Offshore NL1, was initiated in 2006. The identified events are dated from May 2006 up to the beginning of 2015. An overview of the events and their relations over time is figured, see Figure 19. The results of the ESA will be reviewed below. Note that there is an additional class of events, namely stakeholders. This type event shows stakeholders entering or exiting the process but who are not involved (at that moment) in events classified as IA (informal assessment) or FA (formal assessment). Table 7 gives again the description of the classification and the coding of the events.

| <i>Events, High order class</i> | <i>Event Subclass</i> | <i>Event Code</i> |
|---------------------------------|---------------------------------|--|
| <i>Formal Assessment (FA)</i> | Environmental impact assessment | FA_EIA 1 (Bard Offshore NL1/GWS Offshore NL1) FA_EIA 2 (Gemini) |
| | Expectations | FA_EX |
| | Actions | FA_AC |
| <i>Informal Assessment (IA)</i> | Expectations | IA_EX |
| | Actions | IA_AC |
| <i>Context (CO)</i> | Local Policy | C_LO |
| | National Policy | C_NA |
| | Economic and Business | C_ECBU |
| <i>Stakeholder (ST)</i> | Stakeholder enters or leaves | ST |

Table 7 Overview of the codes for the event types.

The results of the ESA will be discussed in steps. Firstly, the overall process will be described. After that, a few important events will be studied in more detail. Then, a number of clusters of events will be discussed. Lastly, the patterns which would be expected from the conceptual model drawn from the theory in chapter 3 will be presented. Through this step-by-step approach, the coherency of the sequences of events becomes clear, which then can be analysed in the next chapter.

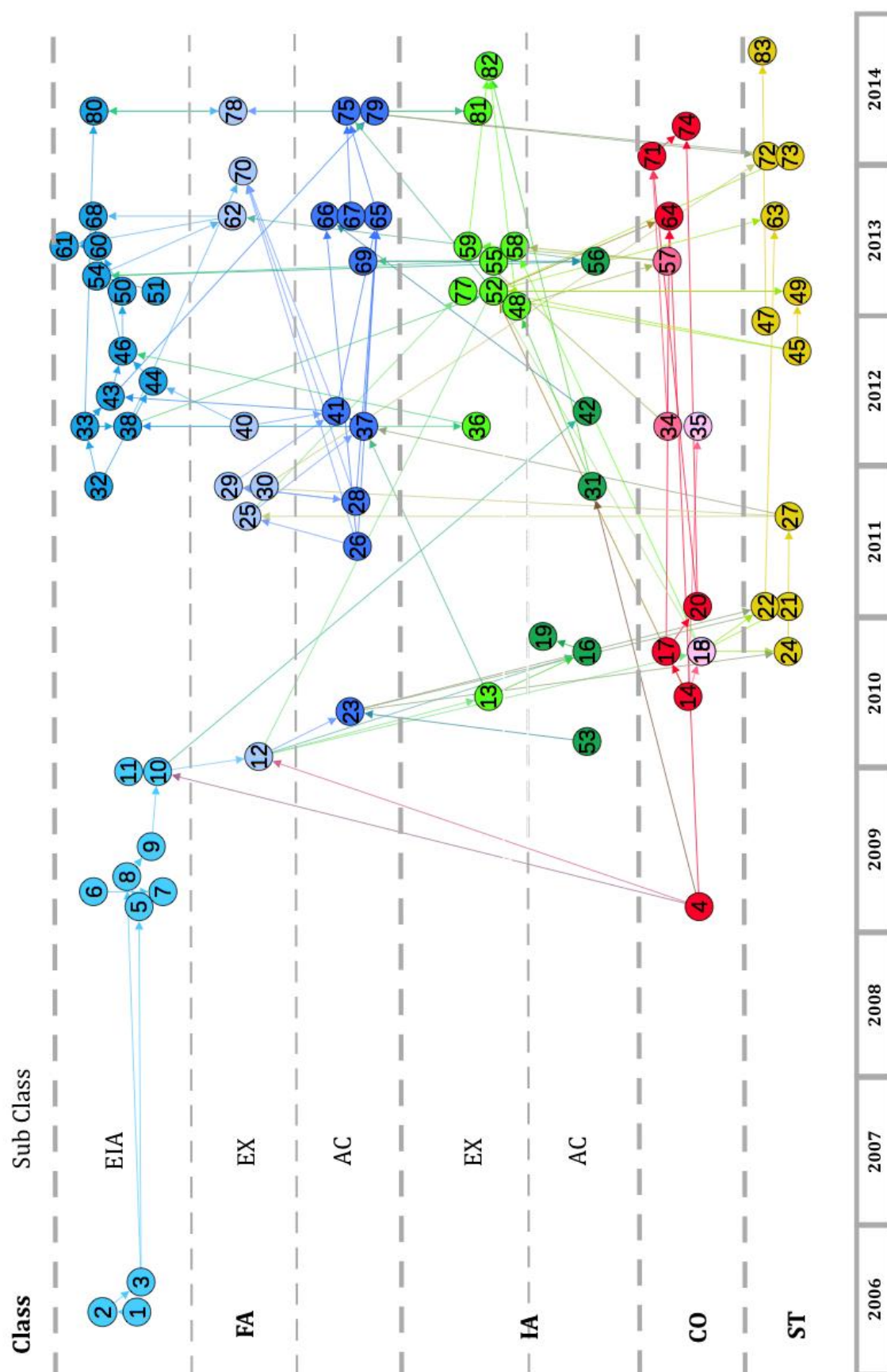


Figure 19 Event web of Gemini. Types of events are indicated in different colours for every class and subclass. Blue= FA, Green = IA, Red = CO, Yellow = ST.

5.2.1 The Process

The Gemini project comprises of 83 events, classified in different groups. When we look at the events placed on a time line, the overall process can almost be described as two separate rounds. As Figure 20 shows, events that happened between 2006 up to the beginning of 2011 have been separated from those that took place from 2011 onwards (until beginning 2015). Around 2011, where the line can be drawn, a few events caused the process to become more active again. The dynamics and interaction within the process, as drawn in the conceptual model, is different in both rounds (1 and 2) and will be discussed separately below.

5.2.1.1 Round 1 of the process

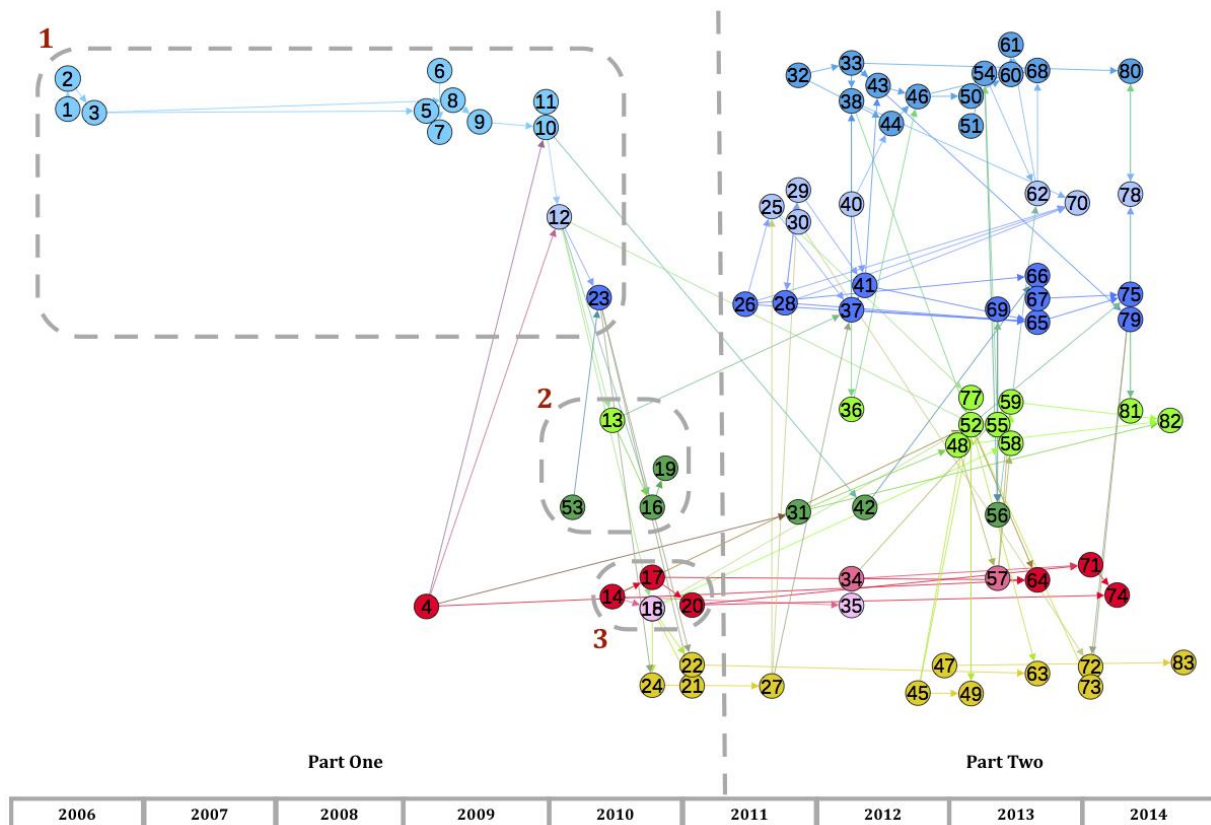


Figure 20 Round 1, block 1 FA events, block 2 IA events and block 3 Context events.

Formal Assessment events in Round 1 (block 1, fig 15)

Event number 2, May 2006, indicates the start of the public review on the project initiations (event 1) submitted by BARD Gruppe on the three offshore locations, Bard Offshore NL1, EP Offshore NL1 and GWS Offshore NL1. Event number 3 indicates the advice of the Ministry on the range and detail level of the EIA studies. 23 reactions were received on the project initiation documentation of Bard Offshore NL 1, 23. BARD Gruppe performed the EIA studies, and the first public review on the EIA study dated from 3-3-2009 up to 14-4 2009. In this period, the EIA commission received a total of 98 reactions on the EIA study of Bard Offshore NL1. The revisions on the EIA studies took place and in December 2009 the Wbr permits for all three locations were given (event 10) by the ministry (event 4). In January 2010, BARD Gruppe received subsidy for two of the three locations, for Bard Offshore NL1 and GWS Offshore NL1, which was unexpected (event 12). This subsidy resulted in interaction with the informal assessment.

Informal Assessment events in Round 1 (block 2, fig 15)

After subsidies for the locations were allotted to BARD Gruppe, Dutch parties were discontented (event 13). Energy Valley desired that BARD Gruppe would involve as much Dutch parties as possible for the

development of the offshore wind farms (event 53), so that not all labour would go to German companies and stop the Dutch industry from profiting from the offshore development. Energy Valley convinced BARD Gruppe to involve more Dutch parties. Many Dutch parties showed interest and wanted to participate in the project (event 23). Nuon and Eneco made appeals to the Dutch court because they did not agree with the decision of the Dutch Ministry (event 16). Nevertheless, they did not win this case, it was decided that the subsidies given to BARD Gruppe locations were based on the right grounds (event 19).

Context event in Round 1 (block3, fig 15)

Context events that had some influence on this interaction took place in 2010, which were mainly shaped by the Dutch national policy. Different sources claimed that this policy by the Dutch government would be too unclear for entrepreneurs to invest (event 14). This made the risk for investment by Dutch entrepreneurs in this industry too high.

5.2.1.2 Round 2 of the process

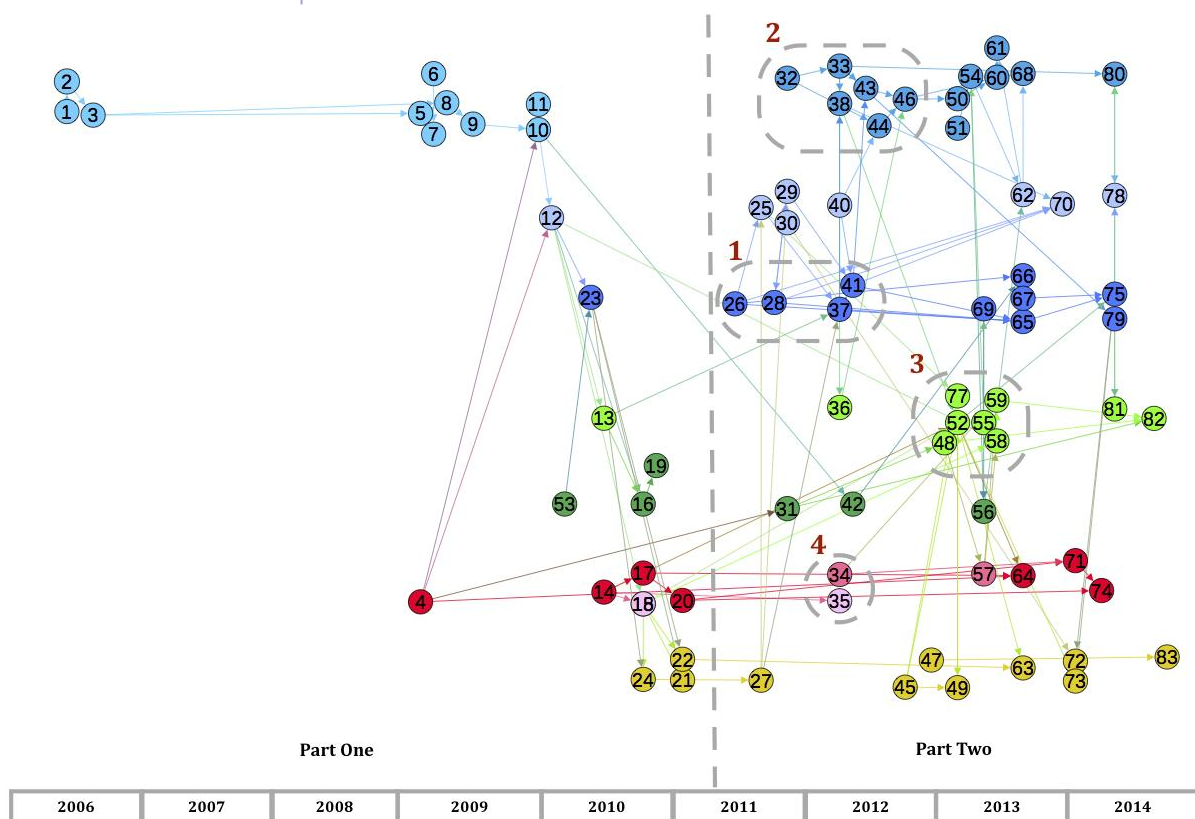


Figure 21 Round 2, block 1 actions taken by FA stakeholders, block 2 EIA changes, block 3 expectations of IA stakeholders, block 4 context events.

Figure 21 shows Round 2 of the process after 2010 BARD Gruppe's role in the project changed and this affected the process. In August 2011, Typhoon became the owner of the project. The switch of project leader had different influences on the whole process. Four blocks of events will be discussed.

Actions taken by FA stakeholders in Round 2 (block 1, fig 16)

When Typhoon took over and became project owner, different actions influenced the Formal Assessment process. First of all, the project itself was changing. At first, the farm and the station were in one proposal. However, Typhoon separated the two with the idea that it might be easier to find investors. Furthermore, the two separate parks, Bard Offshore NL1 and GWS Offshore NL1, were named Gemini. It became one project, yet still with two distinct licenses. Next to these changes, Typhoon had

the opinion that the turbine type should be changed, with the consequence that the EIA's made for the two locations were not applicable for the permits anymore. All these actions required for the first EIA documents to be adjusted, meaning a second EIA study.

EIA changes in Round 2 (block 2, fig. 16)

After a while, it became apparent that the first EIA study for Gemini did not cover the new plans. In that period, the beginning of 2012, the ministry discussed performing one large EIA study for the Waddenzee for cables and pipes, for all the different aims and their effects (event 33). Event 43 indicates that the start notation now not only contains the Gemini cable but also the design of the farm.

Expectations of the IA stakeholders in Round 2 (block 3, fig. 16)

The expectations of stakeholders involved in Informal Assessment events regarding the project changed. Slowly, the project became more acceptable to them. Even more investors were found, which was one of the main problems during the project. Step by step, the financial prospects gave stakeholders more trust in the potential success of Gemini.

Context events in Round 2 (block 4, fig. 16)

The context in Round 2 also changed. The local political environment desired to stimulate the offshore wind industry in their area. They saw the offshore wind sector as a positive potential to generate more jobs and stimulate their local economy and even longed for more offshore wind turbines. They believed that more potential investors may be interested if TenneT would provide the offshore grid in that location. Lastly, the local Government invested in the nearest harbour, Eemshaven making it more attractive for contractors to locate there and to stimulate the construction for Gemini at the Eemshaven. Potentially, other offshore wind farms may also be constructed here.

5.2.1.3 Events that have a Central role or indicate an Outcome

Events may have certain effects (direct or indirect, big or small, positive or negative) on other events. The effect of one event towards another event is shown by drawing a line, with direction between them. So when an event has a high number of outgoing lines towards other events, it was an event with a lot of influence on other events. Note that this does not suggest that events with many outgoing lines are the most important events in the process. For every event, the number of outgoing and ingoing lines are counted. The one with the most lines are here classified as central events. These central events are listed in Table 8 and will be briefly discussed.

Central events

Event 23 indicates the decision of BARD Gruppe to assign at least 50% of the work to Dutch companies and event 15 indicates the high interest of different companies in the project. Both events influence in some way other events. Event 37 is the change of turbine type, from turbines of Bard into the Siemens turbines, and change of substructure type from triploid to monopile (event 41). Event 46, with three ingoing links and two outgoing links, indicates the public review of the second EIA study on Gemini (farm and cable). Event 52 has the most in- and outgoing links. This indicates the loan provided by the EIB (European Investment Bank), the first step for the financial completion. The last central event is event 62, which indicates the fishermen who revoked their appeal therefore finalising the EIA study.

| Event number | Short Description events | Event type | Number of incoming links | Number of outgoing links |
|--------------|---|------------|--------------------------|--------------------------|
| 15 | High interest of companies to cooperate with Bard. | IA_EX | 1 | 4 |
| 23 | Bard Gruppe assigns at least 50% of the work to Dutch companies. | FA_AC | 2 | 3 |
| 27 | Project in Dutch hands, Typhoon takes over. | ST | 1 | 3 |
| 33 | Discussion on performing one large EIA/ EIS for Waddenzee cables and pipes. | FA_EIA | 1 | 5 |
| 37 | Typhoon will use Siemens turbines. | FA_AC | 3 | 3 |
| 41 | Turbine and construction type for Gemini will change. | FA_AC | 3 | 3 |
| 46 | Public review on EIA Gemini. | FA_EIA | 3 | 2 |
| 52 | Rise in trust due to new investors, technology change and EIB investment. | IA_EX | 4 | 5 |
| 62 | Certain the project will go on. | FA_EX | 2 | 2 |

Table 8 Central events due to high ingoing influence of other events or high outgoing influence on other events.

Events indicating the outcome of a decision

In the process, different decisions have been made. This resulted in certain outcomes. The first outcome is indicated by event 70. Here, Typhoon claims that the delay in the project was due to the change in technology, which resulted in a new EIA study. Event 75 indicates the finalization of the EIA project. At that moment, investors had been found and contracts had been signed. Another sight development related to the project was, due to the development of Gemini, that a heliport in the Eemshaven was required. The heliport itself would influence the environment on different aspects such as noise, nature, etcetera. The decision was therefore taken that an EIA study should be performed (event 80). Lastly, the Dutch Government decided that no further offshore wind development would occur in the Waddenzee.

5.2.1.4 Cluster

Reviewing the overall events, there was a period in which many events took place, a 'cluster', from the end of 2012 up to the beginning of 2013. This cluster can be divided into two sub-clusters. One contains many IA events and the other many FA events. Figure 22 shows these two sub-clusters separately, with their linked events.

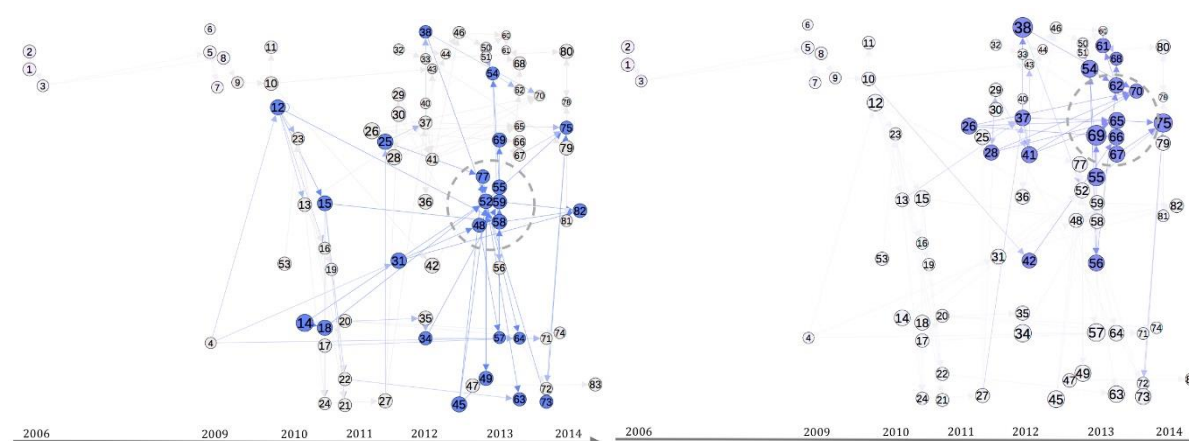


Figure 22 Cluster of events in Gemini, the blue sub-cluster (left) includes events typified as public discourse, with its connected events. The purple sub-cluster (right) includes events typified as EIA and linked events.

First sub cluster of Informal Assessment events

The first sub-cluster may be typed as an IA cluster. This cluster exists of events concerning the financial realization for Gemini. This financial outcome was the result of finding the last investors and the last shareholders for the project, which was a major struggle. Yet when the technique changed and the EIB (European Investment Bank) signed the first loan, the trust in the project was restored. The fact that the EIB was willing to invest, may be viewed as a central event (event 45) within this cluster. Once the loan was effected, other parties were more willing to invest. The reason for this was not the lack of interest for the project, but the uncertainty that made potential investors hesitant. Namely, event 15 indicates that companies did wish to be a part of the Gemini project. Yet event 14 also shows that the uncertainty of the offshore wind policy (context) shaped by the Dutch politics made it too risky for potential investors. Event 25 indicates that the expectations of success surrounding the project were still very low even when Typhoon took over. These events had a negative influence on achieving financial completion. The technology changed and the commitment of the EIB to the project created a shift. It went from a low expectation of project success up to the middle of 2011, towards a high expectation after 2013.

Second sub cluster of Formal Assessment events

When the new EIA study was completed, the second sub-cluster emerges. The main input for this cluster were events indicating the change in turbine technology and the change of construction type used to attach the turbines on the seabed (FA events types). Other events resulting in an impact on the termination of the EIA procedure were events 55 and 56 (IA events). These events indicate the development of controversy among the fishermen. They were concerned about the impact of the project on their own (fishing) activities (event 55), and made a formal objection to the project. Later, they withdrew this appeal due to the fact that they would be allowed to fish near the track of the cable (event 56). This ensured that the EIA study fulfilled the requirements to obtain the new Wbr license.

Within this cluster overview, two major completions in the project were achieved; the financial realization and the ending of the EIA procedure. These finalizations occur almost simultaneously and together form a major cluster. Nevertheless, it may be seen that the clusters do not contain many events that are linked to both clusters. There is only one event that is connected to both sub-clusters, event 38, which is the new turbine type that required the farm to be redesigned. The redesign positively influenced the trust in the project. Due to this increase of trust, Typhoon was finally able to close the deals with investors. Correspondingly, the new technological design of the farm and its cable made that a new EIA study was necessary. The technical change has been important for both sub-clusters and therefore also the major cluster.

5.2.1.5 Sequences between the event types

The conceptual model shows an interaction between the EIA (here formal assessment) and the public debate(here informal assessment). When the sequences were analysed, the results revealed an improved representation of the links identified in the conceptual model. We will discuss them in three phases;

- the sequence from FA to IA,
- from IA to FA and
- from context to FA and IA.

Note that the events indicating the EIA steps in the first EIA study on Bard Offshore NL1 and GWS Offshore NL1 are not taken into account here. From this period, less media items were found that indicated IA events. This would influence the analysis. So for this reason, the sequences between FA and IA are calculated starting from event 10.

Amount of sequence seen from FA to IA

The total amount of sequences between events is given in Table 9. Two types of sequences are most frequently seen, FA_EX → IA_EX and FA_EIA → IA_EX. Note also that FA events predominantly influence the expectations of the IA stakeholders, this occurs 8 times. FA events only 3 times influenced the actions directly. This corresponds with the conceptual model.

| Category FA | Related towards IA category | Number of sequence | Percentage sequence |
|-------------|-----------------------------|--------------------|---------------------|
| FA_EIA | FA_EIA → IA_EX | 3 | 3/11 |
| | FA_EIA → IA_AC | 1 | 1/11 |
| FA_EX | FA_EX → IA_EX | 4 | 4/11 |
| | FA_EX → IA_AC | 1 | 1/11 |
| FA_AC | FA_AC → IA_EX | 1 | 1/11 |
| | FA_AC → IA_AC | 1 | 1/11 |
| Total | | 11 | 100% |

Table 9 Overview of the amount of sequence from FA towards IA.

Eight FA events influence eleven IA events (Figure 23). Event 12, indicating that BARD Gruppe officially receives the permit to develop the offshore wind farm at the location after performing an EIA study, is the event which interacts the most with IA events (13, 15, 16 & 58). It triggers a reaction of expectations about the project by IA stakeholders, namely that Dutch parties are discontent (event 13). The underlying reason is that BARD Gruppe is a German company, which possibly may result in more work being allotted to German companies. Dutch corporations had a high interest in this project, they expected much from the offshore wind project (event 15). Many corporations were interested in fulfilling a role in the project, because of good provisional and developmental expectations regarding this industry. Yet on the other hand, corporations were discontented that it was granted to a German company, because they believed it lowered their chances of participation in the project. Another FA event which triggered a reaction was event 16, namely that Nuon and Eneco took legal steps against the Dutch ministry of economic affairs concerning the granting of the project to BARD Gruppe. Another action of the IA stakeholders on the FA process was on the EIA itself by the fishermen. They started by commenting on the public review of the EIA and later started a legal procedure. Their motive was the belief that they would not be allowed to fish during different periods in time in different areas surrounding the construction location. The expectations of the general public were also influenced by different FA events. These influenced the expectations of the EIA study (event 36) and the trust in the project's success (event 52).

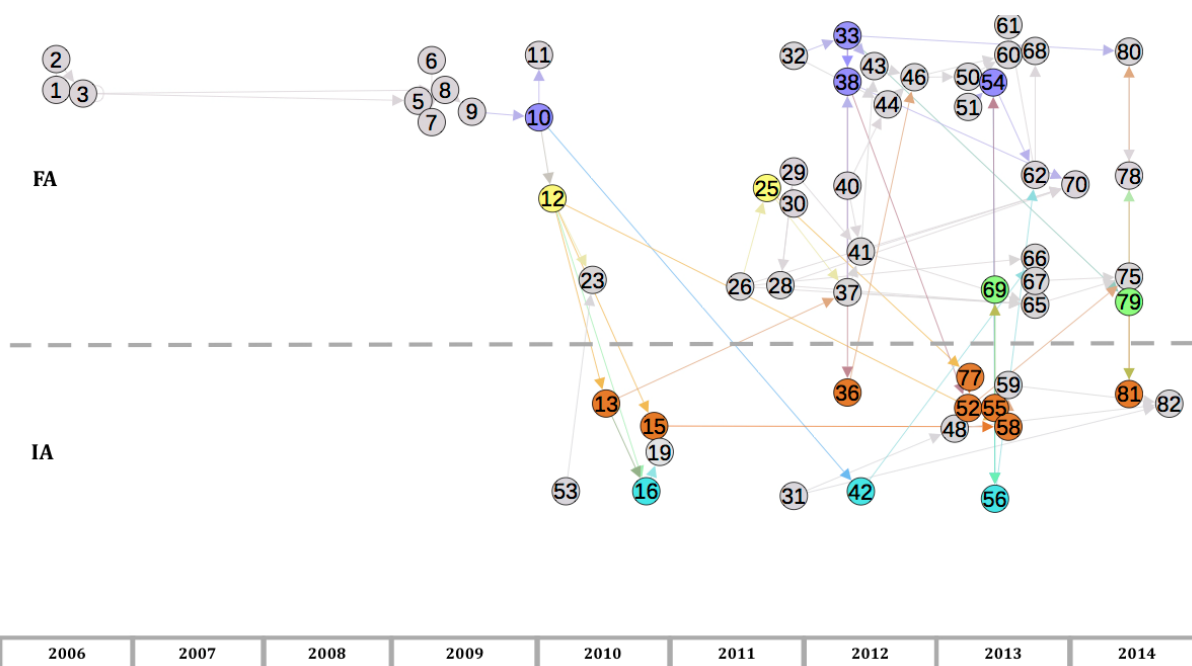


Figure 23 Events typified as FA which influence the IA events, Purple FA_EIA, Yellow FA_EX, Green FA_AC, Orange IA_EX, Light Blue IA_AC.

Amount of sequence seen from IA to FA

There are 8 events within the IA class which influence the FA class, Figure 24. For example event 53, indicating the discourse between BARD Gruppe and Energy Valley. BARD Gruppe's reaction was to make public that they would involve Dutch parties (event 23). Event 55, indicates the expectations of the fishermen on the impact of Gemini, which had an influence on one EIA action (69) and one event in the subclass EIA procedure (54). It can be seen that the IA events mainly influence the actions of stakeholders involved in FA events, 5 out of 8, see Table 10 although the conceptual model indicates that the actions of the stakeholders involved in IA events should be followed by expectations of the stakeholders. An explanation for this phenomenon is that the expectations of the stakeholders involved in FA events will be less expressed in the media.

| Category IA | Related towards FA category | Number of sequence | Percentage sequence |
|-------------|-----------------------------|--------------------|---------------------|
| IA_EX | IA_EX → FA_EIA | 2 | 2/8 |
| | IA_EX → FA_EX | 0 | 0 |
| | IA_EX → FA_AC | 3 | 3/8 |
| IA_AC | IA_AC → FA_EIA | 0 | 0 |
| | IA_AC → FA_EX | 1 | 1/8 |
| | IA_AC → FA_AC | 2 | 2/8 |
| Total | | 8 | |

Table 10 Overview of amount of sequences from IA towards FA.

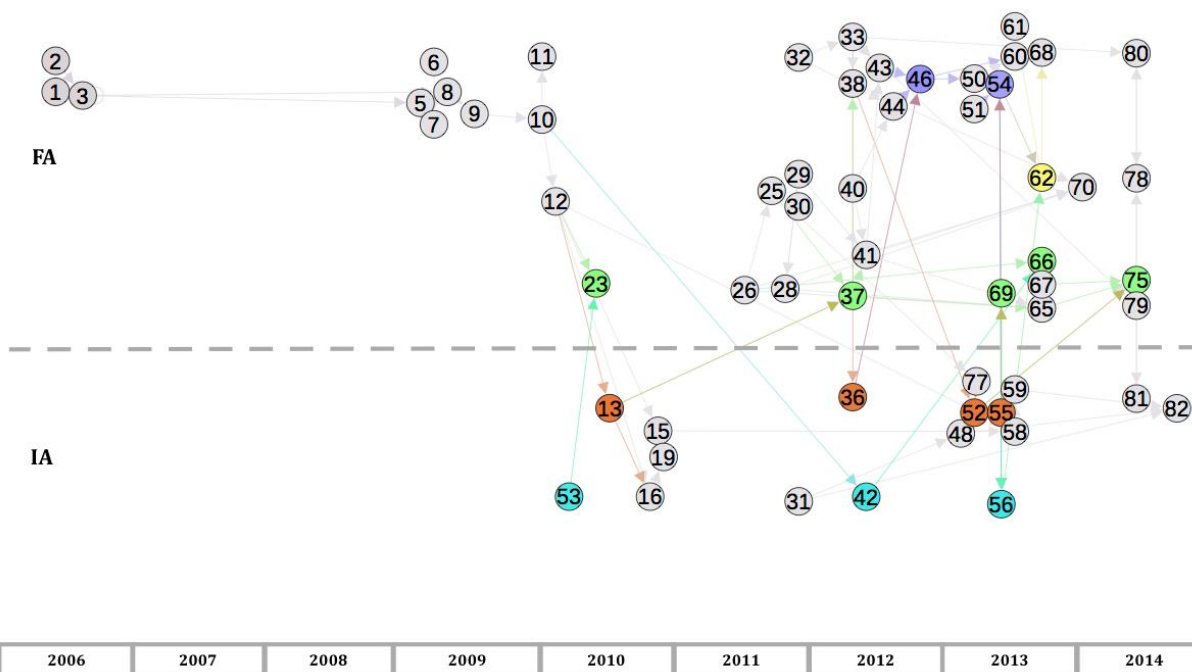


Figure 24 Events typified as IA influencing the FA events, Purple FA_EIA, Yellow FA_EX, Green FA_AC, Orange IA_EX, Light Blue IA_AC.

Sequence from Context and Stakeholder to FA and IA

The conceptual model also shows that context events play a role in the discourse of FA and IA events. Note that stakeholder changes during the project influence the context in which the interaction takes place. When a stakeholder enters or leaves the project, this has an effect on FA as well as IA events even though this stakeholder event does not belong to one of both process circles. For this reason, the entering or exiting of a stakeholder is classified as a separate event type. Table 11 and Figure 25 show the sequences of context and stakeholder events in relation to FA and IA events. This shows that expectations of IA stakeholders (IA_EX) are mostly influenced by context events, namely 5 out of 8. In total, the context events and stakeholder events mainly influence the expectations of the FA and IA stakeholders.

| Category Context/ Stakeholder | Related towards FA or IA category | Number of sequence | Percentage sequence CO/ST Total | |
|----------------------------------|--------------------------------------|--------------------|------------------------------------|------|
| CO | CO → FA_EIA | 1 | 1/8 | 1/14 |
| | CO → FA_EX | 1 | 1/8 | 1/14 |
| | CO → FA_AC | 0 | | |
| | CO → IA_EX | 5 | 5/8 | 5/14 |
| | CO → IA_AC | 1 | 1/8 | 1/14 |
| | Total CO | 8 | | |
| ST | ST → FA_EIA | 0 | | |
| | ST → FA_EX | 2 | 2/6 | 2/14 |
| | ST → FA_AC | 2 | 2/6 | 2/14 |
| | ST → IA_EX | 2 | 2/6 | 2/14 |
| | ST → IA_AC | 0 | | |
| | Total ST | 6 | | |
| Total CO + ST | | 14 | | |

Table 11 Overview of sequences from Context events to EIA and PD events.

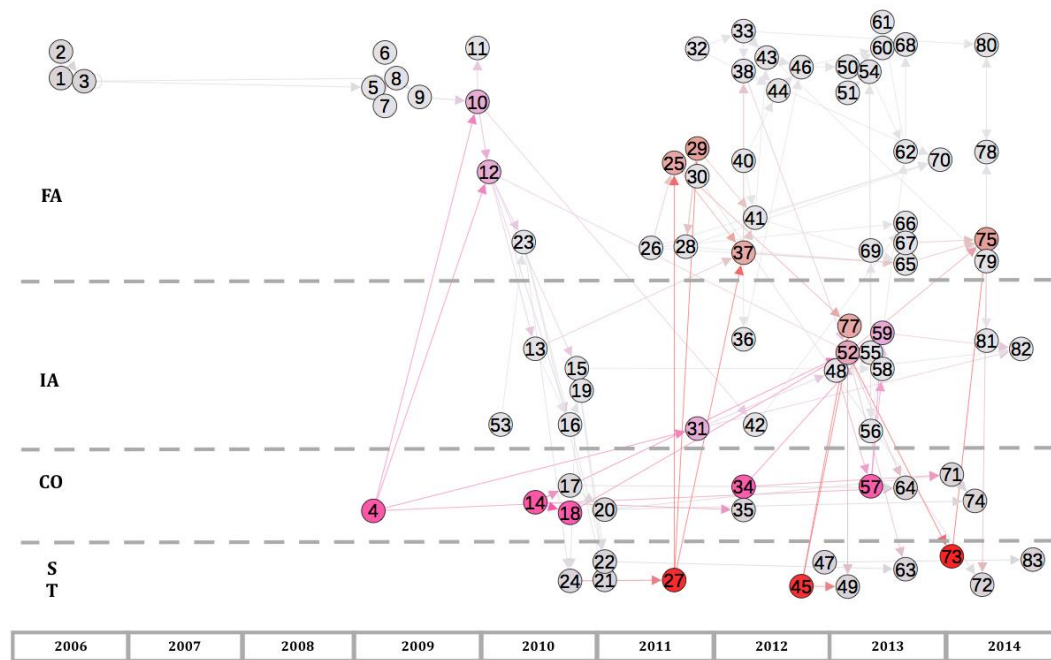


Figure 25 Context (Purple) and Stakeholders (Red) events influencing the FA and IA.

5.3 Provisional Summary

This chapter first showed the main stakeholders in the process. After that, the story of Gemini is told by elaborating on the different events. The event web showed that there were almost two separate parts in the process. The first one was where BARD Gruppe was the main project owner. Here, Gemini was called differently and still existed out of two parts and the EIA studies were performed. However, the main public debate was about the concerns of many Dutch parties due to the fact that BARD Gruppe was a German party. The effect of this was that Dutch parties were concerned that all the labour and profits would go to German parties. The reaction of BARD Gruppe on the complaints and advises of different parties was to ensure that they would hire as many Dutch parties as possible.

The moment Typhoon took over the project resulted in many more events. Typhoon changed visions and ideas regarding the project, resulting in a second EIA study. The changed vision of Typhoon was due to a number of reasons. One main reason was the lack of finding investors.

The result also showed some central events and events that indicated the outcomes of certain decisions. For example, the moment Typhoon became the project owner or the rise in trust due to finding new investors. Furthermore, the results showed a cluster at the end of 2012 up to the beginning of 2013. This cluster could be further divided in two sub-clusters. One existing of almost only FA events and one of IA events. It showed that the technical change was a very important event for the clusters.

Lastly, the sequences and the frequency of the sequences were discussed. Firstly, the FA influences mainly the expectations of the stakeholders in the IA, 8 out of 11 events. Secondly, the FA mainly influences the actions from the stakeholders in the FA, 7 out of 8 events. The context influences mainly the expectations of both stakeholders in the FA and IA. However, the amount of short sequences (one event to another event) is now known, this does not create insight in the understanding of longer sequences though it does show us that the conceptual model forms a good basis and gives a good representation of the linear sequence. However, for a better understanding of the process, it is necessary to create more insight in how the FA and IA interact. A deeper analysis of this will be done in chapter 6.

6

Patterns & Mechanisms

6. Patterns and Mechanisms

In chapter 5, the events have been conceptualized, linked and an event web has been composed. In this chapter, patterns in the collection of events will be detected. Subsequently, relevant patterns (event sequences) will be grouped together following two separate rationales. That way, the next research question will be answered: *“Which patterns can be identified in the interaction between the EIA and the Public Debate and what mechanisms are behind the occurrence of such patterns for Gemini?”*.

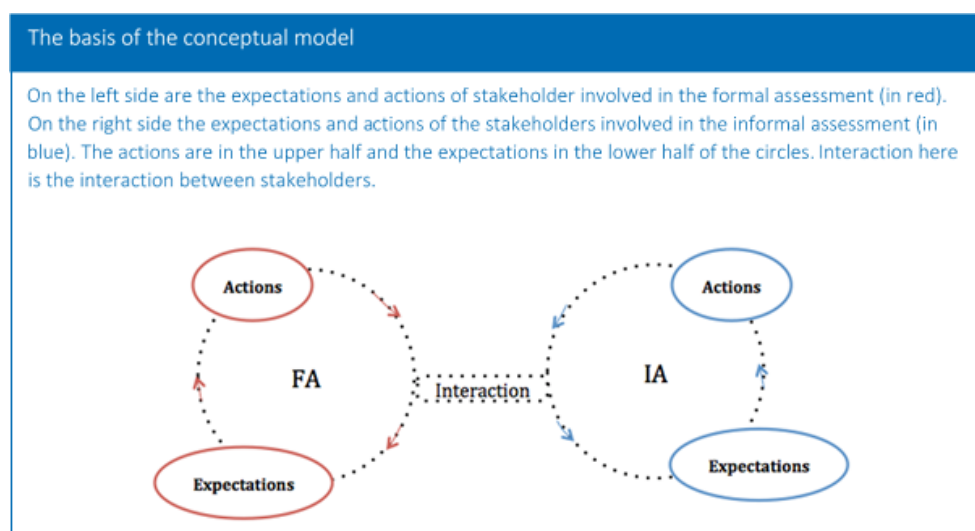
First, a number of patterns will be selected to test the literature concerning the findings in the case study. This literature conceptualises a common sequence of events, as explained in the conceptual model, which will be compared with the findings in the case study. Second, patterns of change will be examined to analyse the interaction between the EIA and the public debate. A total of seven patterns will be analysed. The detection of the patterns is important, however, in order to create a better understanding of the interaction, we also have to look at the driving mechanisms behind the occurrence of the patterns. Where the mechanism is the driving process motor that can generate the complex behavior of a pattern we all can recognize (Langley, 1999).

The analysis of the patterns in this chapter will be executed in three steps. First, the events that form a sequence will be detected and the characteristics of the events will be discussed. Second, the analysis of the patterns, and if the events can be placed within the conceptual model, will be studied in order to test the theory or to analyse the interaction between the EIA and the public debate. Third, the possible driving mechanism(s) behind the occurrence of the pattern will be argued.

The three steps to analyse the event sequences, patterns and mechanisms are:

1. Identifying the event sequences in the overall event web
2. Placing the event of the sequences in the conceptual model to identify the pattern
3. Identify the mechanism that drives the pattern.

The sequences analysed in this chapter have their place in the overall event web provided in chapter 5. The separate events that form one sequence will be isolated here in separate figures, to distinguish the sequence and analyse them individually. In addition, to analyse if the pattern fits in the conceptual model (step 2) we use a simplification of the conceptual model, see Text box 2. In that way, every pattern of events can be placed within the conceptual model with its links.



Text box 2 Simplification of the conceptual model.

As mentioned in chapter 1 and 4, there are two other projects (Nordsee Ost and Norther) that have been studied in order to reflect on findings in the Gemini case. For some patterns and their driving mechanisms we will refer to those projects and give examples.

6.1 Pattern demonstrating the influence of Economic & Business and Place & Community

Event Sequences

The first sequence of events concerns the fishermen (Figure 26). The start of this sequence can be set at the moment expectations were formed by the fishermen regarding the Gemini wind farm and its required high voltage offshore cable. The fishermen expected that this project would interfere and hinder their business (55). They viewed the results in the EIA (54) and wanted to appeal against the project by appealing against the EIA. The stakeholders involved in the EIA reacted on this notion by explaining and ensuring the fishermen that they were allowed to fish near the Gemini cable once it was constructed (69). This made the fishermen drop their appeal against the EIA (56) which caused the project to be exempted from review by the Raad van State as a formal requirement (62).

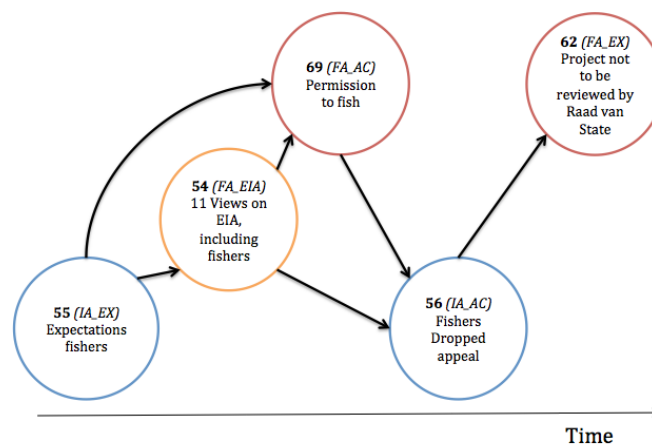


Figure 26 Sequence of events concerning the fishermen objection to Gemini. Red= FA events (69,62), Yellow= Event regarding the EIA study (54), Blue = IA events (52), EX=expectations, AC= actions.

Pattern

The events in this sequence could be placed within the conceptual model (Figure 27), identifying the pattern among the events. Event 55 represents the expectations of the fishermen who are involved in the public debate. The effect of those expectations was a public review of the EIA study, forming an interaction between the stakeholders in the two process circles. After this viewing, it became clear to the stakeholders involved in the formal process, that there were objections and concerns against the project and that made that the stakeholders formed expectations regarding the public. This caused Typhoon (involved in the formal assessment) to react on the matter, event 69, which is an action. They made clear that the fishermen would be allowed to fish also during construction of the cable, addressing the main cause of discontent among the fishermen. Consequently, the fishermen dropped their appeal against the EIA, event 56. This effected a change in the expectations of Typhoon (and others) regarding the process and the public, event 62.

Placing this sequence of events in the conceptual model, we observe that it is adequate to the theory. Note that the sequence misses some events regarding what can be expected from the theory. First, we miss an event between number 55 and 54, an action. We might expect an action here of the fishermen. They viewed the EIA; nevertheless, this action could not be seen in the media, that is why it is not

captured into an event. Also, between event 54 and 69, an expectation event on the EIA side is missing. Although Typhoon reacted on the matter, their expectations were not mentioned in the media. This is not that strange, as these expectations might only have been discussed behind closed doors.

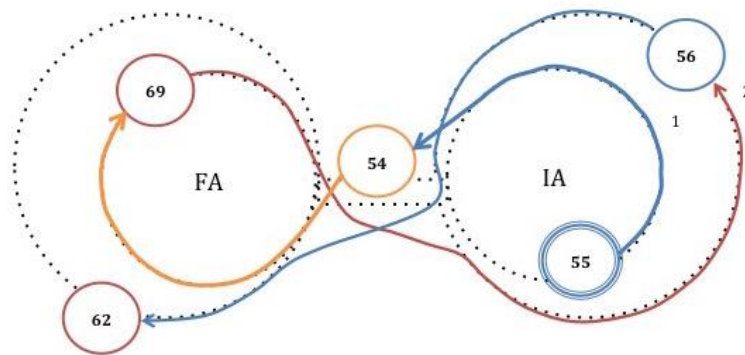


Figure 27 Pattern fishermen. Fishermen have expectations of the project (55); they view the EIA and object to the plan (54). Typhoon reacted on this (69), which resulted in the action of the fishermen to drop the appeal (56), followed by adjusted expectation of process and public for Typhoon (62).

Mechanism behind the pattern

The mechanism that drives this pattern could be clarified by the contextual variable of “Economic and Business” (defined by Walker et al. (2011)). Gemini would be constructed within the waters of the fishermen. If the fishermen would not have been able to fish during a time period, this would have affected their incomes. One value that would have been harmed due to this is “economic benefit”. Likely, the fishermen would not have benefited from the project but only be disadvantaged by it. By ensuring them that they would still be allowed to fish, their fear for economic loss was reduced.

Also, the reaction of Typhoon can be explained by the context variable of “Economic and Business”. Typhoon feared that the appeal of the fishermen against the EIA could negatively affect the project. It was their fear, that the appeal could result in project delay, mandatory adjustments or, in a worst case scenario, the cancellation of the project. All these scenarios caused concern for the profitability of their business.

Another mechanism that can be seen here is the context variable “Place and Community” (defined by Walker et al. (2011)). Gemini is located far from shore which made that a smaller amount of people had an attachment to the location. However, for the fishermen the location was an important aspect. Especially the location of the cable was a factor which raised public discussion among the fishermen. The fishermen formed expectations based on the location and formed actions based on these expectations. For them, the location influenced the evolution of events and by that the process.

This pattern was driven by the mechanism “Economic and Business” which could harm the value of economic benefit for the fishermen and profitability for Typhoon. In addition to that, the mechanism “Place and Community” influenced the expectations of the fishermen.

6.2 Pattern demonstrating the influence of Socio-economic system & Economic and Business

The province of Groningen influenced the project from the start when the BARD Gruppe acquired the permits (event 12), Figure 28. From that moment on, the local policy interfered. Energy Valley, existing of members from the provinces Friesland and Groningen, expected that this decision would influence the profit for the local economy. BARD Gruppe was approached by Energy Valley and they insisted BARD

Gruppe to involve more Dutch parties in the project (53). As a next step, BARD Gruppe reacted by promising to involve more Dutch parties (23).

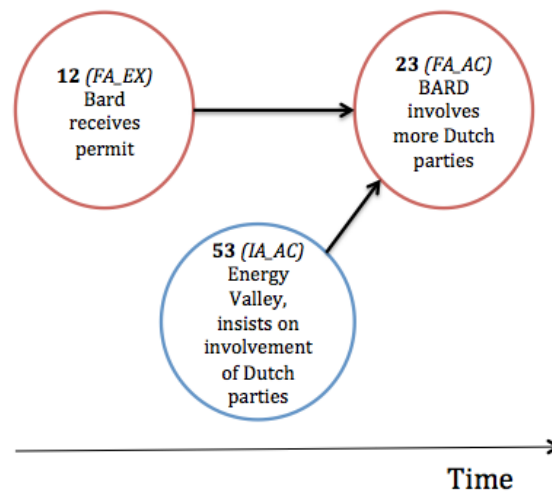


Figure 28 Sequence of events focus on Energy Valley. Red= FA events (12, 23), Blue = IA events (52), EX= expectations, AC= actions.

Pattern

The start of the pattern is event 12, where expectations were formed by BARD Gruppe regarding the further process, now they had received the permissions for construction (Figure 29). However, BARD Gruppe did not expect an action from Energy Valley, event 53. Even though event 12 was the inducement of the action of Energy Valley, this interaction is depicted by a dotted line to show that it is a non-intended interaction between the events. After the reaction of Energy Valley, an intended action was given by BARD Gruppe (event 23).

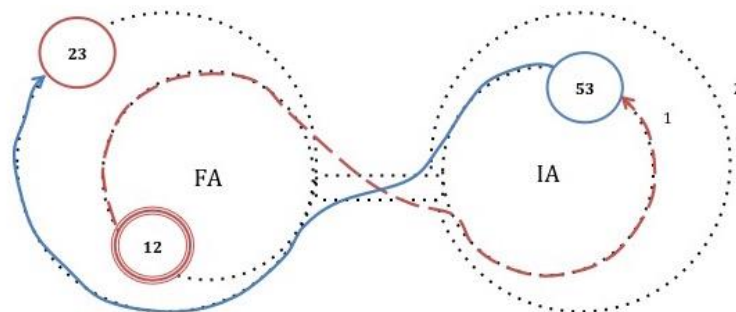


Figure 29 Pattern Energy Valley, BARD Gruppe forms expectations regarding the process now they have the permits (12), resulting in a non-intending action of Energy Valley (53), on which Bard Gruppe acted again.

Mechanism behind the pattern

The mechanism driving the pattern can be described as the context variable “Social-economic system” (described by Kolhoff et al. 2009) and “Economic and Business” (Walker et al. 2011). Energy Valley (organisation that represents the local policy) wanted to protect the local economic situation and feared the participation of local companies in the project. They wanted to reassure that their local economy would benefit from the project with an equal distribution of the benefits. They wanted that local businesses would participate in the project. If the work had gone to German parties, this could have harmed their economic situation. This mechanism is described by Kolhoff et al. as the social-economic system and can be pointed out as the driving mechanism behind action 53 (IA event).

Economic and Business can also be seen as a driving mechanism behind the pattern. Energy Valley wanted to reassure more income for residents and higher levels of prosperity in the area. However, the driver behind the action of BARD Gruppe (23) could be described as “gathering good will” for the project, they changed their strategy. By ensuring a higher level of prosperity for the locals, BARD Gruppe created more goodwill among the actors involved in the public debate. This mechanism is described by Walker et al. as Economic and Business and can be pointed out as the driving mechanism behind action 23 (FA event).

Other examples of these mechanisms effecting projects

These two contextual factors were also identified in other projects, like Nordsee Ost. Heligoland, the island near the wind farm Nordsee Ost, slowly changed from a holiday spot into the offshore base for Nordsee Ost. Locals, hoteliers and fishermen feared that the new reputation of their holiday island would negatively influence the amount of tourists. They feared that the noise and the industrial image would interfere with the island’s image as an idyllic holiday refuge, which can be classified as social-economic system and place and community contextual factors. To meet the locals, the developers invested in building new homes, which were colourful and harmonised the local surroundings of the island. By that, they created more goodwill among the inhabitants.

6.3 Pattern demonstrating the influence of Local and National Policy

Event Sequence

The province of Groningen saw the advantages of offshore wind development in the Waddenzee (34), Figure 30. Offshore development near Groningen could generate jobs. Local political parties in Groningen stated that they preferred more offshore wind energy in sea than on land (57). Ameland and its inhabitants were not happy with those local policy goals. They did not want more offshore wind energy near their island (59). The moment it became clear that the national policy had not selected the Waddenzee for more offshore wind energy (59), Ameland and its people were relieved.

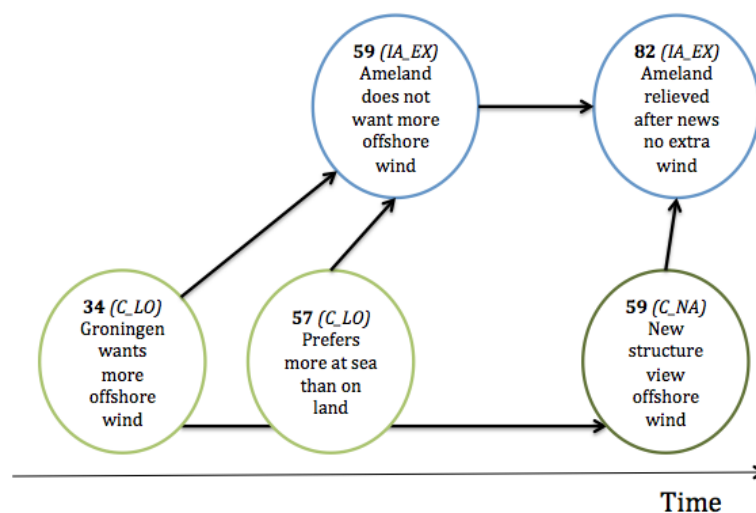


Figure 30 Sequence of events focus on local and national context influence. Green= Context events (34,57,58), Blue = IA events (52), LO= local, NA= national, EX= expectations.

Pattern

This pattern, Figure 31, displays one internal stakeholder, involved in the public debate, namely Ameland. It displays two external stakeholders, local policy-makers (C_LO) and national policy-makers (C_NA). The events influenced by the external stakeholders know their place within the context and are

coloured green. Event 34 and 57 influenced event 59, the public's expectations. Time went by and after the national policy-makers made their decision(event 71), the expectations of Ameland changed (82). The context events 34, 57, 71 had no direct interactions with events 59, 82, that's why it is a dotted line. However, they did influence the forming of expectations by public stakeholders. Also, their expectations changed during the process. The first circle represents an earlier moment in time and the second circle a later moment in time. Note that the expectations of the public changed, without interaction with the EIA. The expectations changed by events which took place outside the process circles.

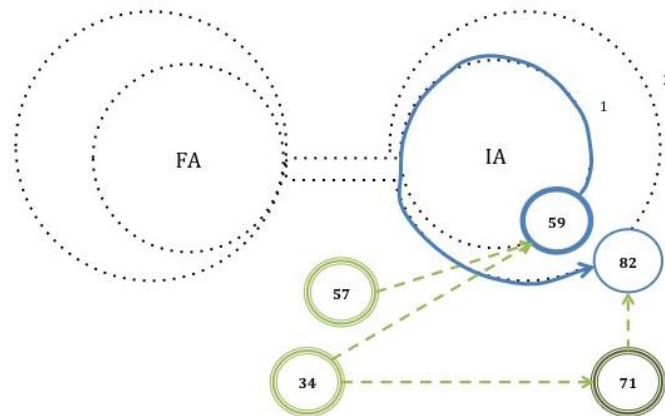


Figure 31 Pattern local and national policy context influence. Local policy actions and expectations (34, 57) influence the expectations in the IA (59). The expectations (59) change over time to new expectations (82), which are influenced by national policy decision (71).

Mechanism

The driving mechanism behind the pattern can be identified as the “Local Policy” but also the “National Policy”. Note that here the mechanism behind the patterns is also classified as an event, for the reason that it was mentioned in the media and is a theoretically significant occurrence, namely a decision.

The local policy-makers influence the expectation of the public in the first phase of the pattern. The local policy-makers wanted to find drivers for this project and any possible further projects. They wanted more local profit and consequently they formed a strategy. To stimulate this, they used a number of policy tools. One was to make the area more attractive for companies to settle. They invested and redesigned parts of the Eemshaven to make it suitable, not only for Gemini onshore constructions, but also to attract other companies. The local Government also lobbied within the national Government for more offshore development. They set a quatum for the number of inhabitants who would be employed in the offshore wind industry, getting at least 1’000 inhabits of Groningen to be employed in the offshore wind industry by 2030. The local policy with its policy tools effected the expectations of the inhabitants of Ameland.

The national policy made that the expectations of the inhabitants of Ameland changed. The national offshore wind policy was changing during the Gemini project as mentioned in chapter 2. In the beginning of the process, the national policy was unclear. Around the year 2013, there was a lot of debate about the offshore wind policy, mainly on whether or not the locations should be constructed closer to shore. The final decision that the Waddenzee would not be an offshore wind location made that the expectations changed and effected the process pattern.

Other examples of these mechanisms effecting projects

The contextual factor National policy was also identified in other projects, like in Germany. From media sources, two aspects became apparent regarding the ‘National Policy’ contextual dimension. Firstly, TenneT and RWE were dissatisfied with the current policy framework regarding offshore wind farms

and offshore grid connections. They even stopped taking further steps in construction due to this dissatisfaction. The media mentioned that there was no legal certainty and no robust network for this industry. In 2012, this wake-up call came to the attention of the German government, especially due to all the problems that were arising with the offshore grid connections. Secondly, the financial crisis had its influence. Experts were afraid this might result in cuts in the renewable funds, which also can be linked to the first point made here about providing a strong constitutional policy. Although Germany wished to stimulate the offshore wind industry, the industry itself was not that satisfied with the national policy. This made that the dimension had different effects on the evolution of events in the Nordsee Ost project (Annex V).

6.4 Pattern demonstrating the influence of a stakeholder switch

Event sequence

As mentioned before, the first project owner of Gemini (that time called differently) was BARD Gruppe. BARD Gruppe hired Typhoon (event 24) for the project as an external stakeholder to help with finding investors for the project, showed in Figure 32 and Figure 33. At that moment in time, Typhoon had a set of expectations, actions and core values formed by their project role. However, when Typhoon became project owner, their position as an external stakeholder changed; they also became a stakeholder in the EIA assessment (event 27). This made that, suddenly, Typhoon was influenced by the expectations and actions of the public debate stakeholders. After a while, Typhoon feared that the public had low expectations regarding the project (event 25). The effect of the formed expectations by Typhoon where actions such as changing the turbine type of Gemini (event 37). Those actions however also changed the expectations of the public on both the project as well as the process. Their expectations became more optimistic (event 52).

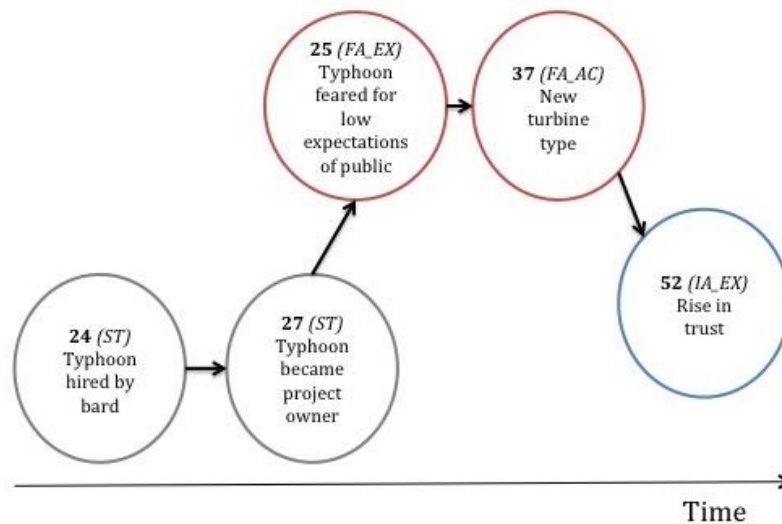


Figure 32 Sequence of events focus on stakeholder switch. = Stakeholder events (24, 27), Red = FA events (25, 37). Blue = IA events (52), EX= expectations, AC= actions.

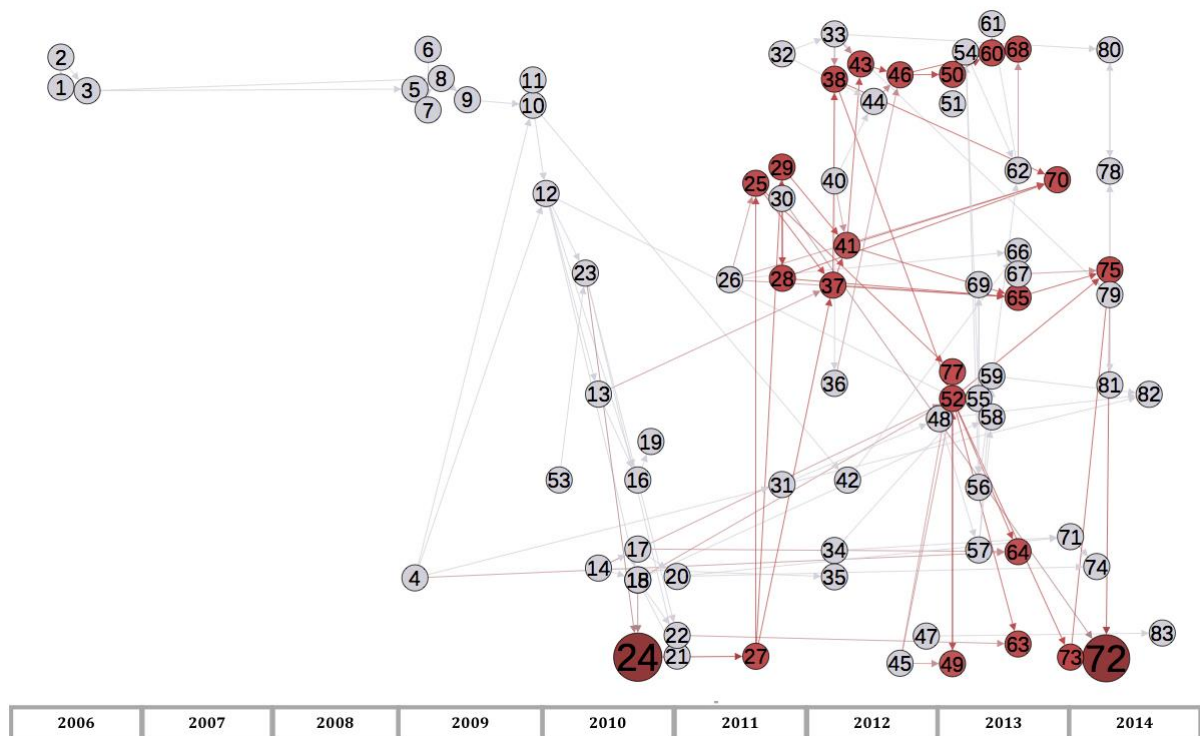


Figure 33 This figure shows the effect of Typhoon entering the process. Node 24 indicates when Typhoon enters; node 72 indicates the event when Typhoon leaves of the project. All the red nodes indicate the event that where effected, direct or indirect, by the entering of Typhoon in the project.

Pattern

The events can be placed in the conceptual model as shown in Figure 34. Event 24, coloured grey, is the moment Typhoon is still an external stakeholder, not influencing the formal assessment. From the moment Typhoon became project owner, its position changed, from external stakeholder to internal stakeholder, which effects the representation below in Figure 34 with the grey circles. Typhoon formed expectations regarding the public and the process (25), making that Typhoon became a stakeholder influencing the formal assessment. The expectations resulted in actions (37) and this resulted in interaction with the public debate (IA) changing the expectation of stakeholders in the IA (52).

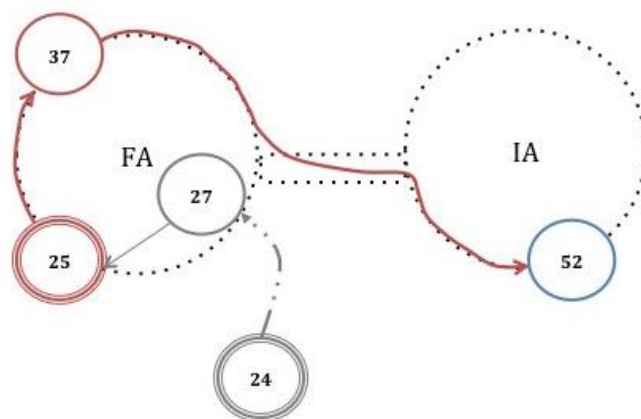


Figure 34 Pattern stakeholder switch, Typhoon external stakeholder (24), becomes internal stakeholder (27). Typhoon influences the expectations (25), which resulted in actions (37), forming interaction with the IA and resulted in expectations of stakeholders in the IA (52).

Mechanism

The driving mechanism behind the pattern can be formulated as “Stakeholder Switch” since the switch of BARD Gruppe towards Typhoon was a mechanism that drove this pattern. If this switch had not occurred, Typhoon would not have been involved in the expectations and actions regarding the EIA. BARD Gruppe might not form the same action as Typhoon because of a different set of expectations. Therefore, the stakeholder switch caused a change in expectations, which caused a change of actions, which explains the pattern presented here.

6.5 Pattern demonstrating the influence of stakeholders positional shift in the process

Pattern

When Typhoon became project owner, it acquired a role in the formal assessment. However, at that moment there was also an external development, which exercised influence on the pattern. Namely, an environmental impact study initiated by the Ministry of EI&L for the Waddenzee cables and pipes (event 32, seen in overall ESA) as well as an EIA for Gemini cable. Since Typhoon was not involved in the EIA process, they had a different place in this pattern namely as a stakeholder involved in the public debate. It can be seen in Figure 33 that Typhoon had no influence on event 32.

Typhoon formed expectations and actions, as a stakeholder involved in the public debate, concerning both projects. They wanted to have some say in the project, especially about the Gemini cable EIA, because it was closely related to their project. The moment it became clear that a part of the EIA for Gemini (farm) had to be redone because of the technology change, Typhoon went from an IA stakeholder to an FA stakeholder. They changed the expectations in the FA influencing the process and the patterns again.

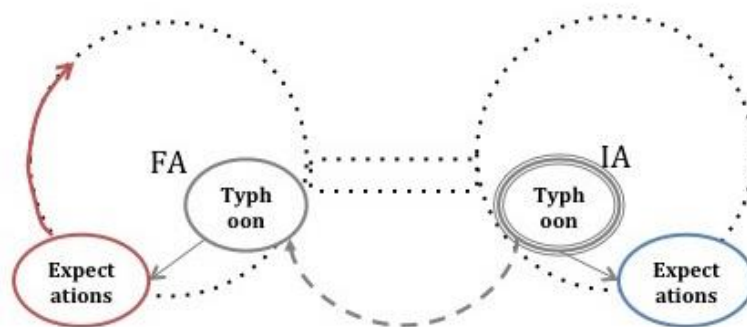


Figure 35 Stakeholder position change. For two projects (EIA and EIS) Typhoon was a stakeholder in the IA, forming expectations (blue circle) on the process held in the FA. When Typhoon became involved in the EIA for Gemini cable they went from stakeholders in the IA towards stakeholders in the FA (the grey dotted arrow shows this). Forming new expectations as a stakeholder in the FA (red circle) and influencing the process.

Mechanism

The driving mechanism behind the pattern can be described as “stakeholder position change”. The position change of Typhoon was the driver of the pattern. The values of Typhoon influenced their expectations and actions. Due to Typhoon’s entering the FA, they changed the expectations of the stakeholders in the FA. This resulted in the reactivation of the process, round 2 (as described in chapter 5).

6.6 Pattern demonstrating the influence of level of involvement of stakeholder

Pattern

Nature or wildlife organisations did not object to the plans or the EIA study, at least there was no mention of it in the media. From interviews it became clear, however, that these organisations were certainly involved and had been consulted at a very early stage of the project by the Ministry (initiator) and Typhoon. This made it possible for the organisations, during the consultation phase with the project owners, to express their concerns and core values. Their advice and concerns were taken into account at an early stage of the project. Therefore, there was no need for them to express negative feelings or objections in the media. A group that was not consulted at the very beginnings of the project were the fishermen. Their core values were not taken into account. As we have seen, they objected to the EIA study. They formed expectations and actions at a later moment in the process.

Figure 36 shows the different moments in time at which both parties, nature organisations and fishermen, were involved in the project. At the very beginning, the stakeholders in the FA consulted the nature organisations, giving them the opportunity to react at the very start of the project (blue arrow). The EIA was completed and the fishermen viewed it and reacted (blue dotted arrow). The Nature organisation did not have to react anymore, while the fishermen did, because they had not been consulted. This influenced the pattern as seen above.

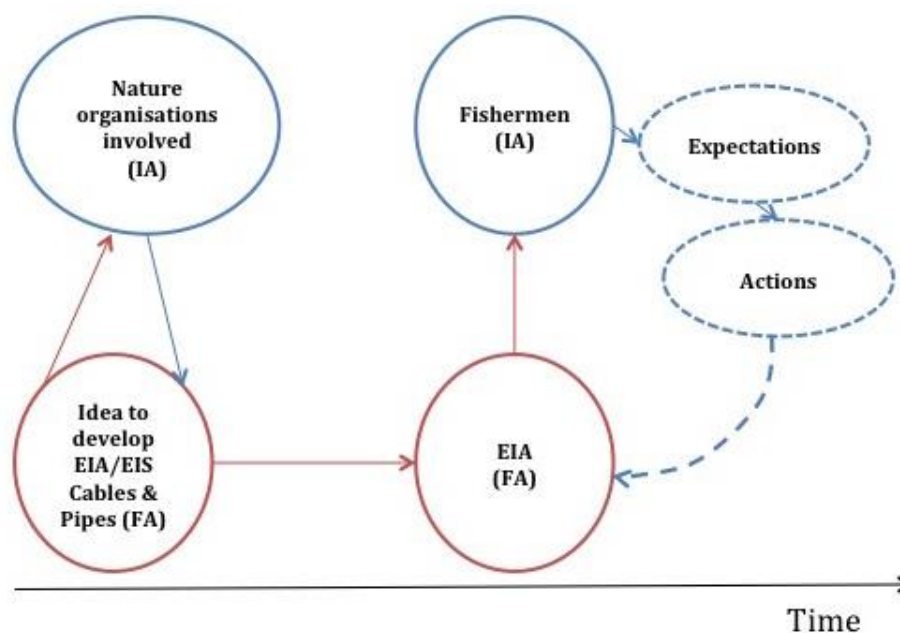


Figure 36 Pattern time of involvement stakeholders in the IA. At the beginning stakeholders in the FA made contact with stakeholders in the IA (red arrow), they reacted (blue arrow). After that the EIA study was seen later in time by the fishermen (red arrow), which resulted in reactions on the EIA (blue dotted line).

Mechanism

The fishermen, as well as nature and wildlife organisations, regarded Gemini as being situated in their backyard. One of them objected whereas others did not. The project owner and initiator actively made contact with the nature organisations, which was not the case for the fishermen. Two mechanisms turn out to be important: actively contacting groups with certain interests as well as doing so at an early stage in the project. The variable 'active participation' may influence the goodwill factor of stakeholders. The variable 'early participation' can give stakeholders the chance to express their core values.

Creating more goodwill regarding a project is important. More goodwill can aid in reducing the objections, debates and controversies resulting in fewer delays or cancellations. Goodwill among stakeholders may create commitment. Commitment implies that a party is willing to contribute to the implementation of decisions or that it will tolerate the results.

By letting stakeholders express their core values at an early stage of the process, it could offer room to protect their core values or at least take them into account. Each stakeholder has its own interests and runs the risk that these interests are not sufficiently addressed. When the core values are not harmed, or at least taken into account, during the project and decision-making this can aid the process. Stakeholders are then less likely to make objections concerning the process or project.

6.7 Pattern demonstrating the influence of Technology change, Economic and Business

Figure 37 shows events related to the impact of the technology change in the project on the process. Event 11 indicates the application of the EIA study performed for BARD offshore NL1 (also for EP Offshore NL1 and GWS Offshore NL1). The EIA study concluded that a turbine type producing 5 MW would be used standing on a tripod substructure. In April 2010, the construction would start and would be finished before December 2011. Event 41 indicates the decision of the turbine change. Followed by events triggering a new EIA study, event 68 indicates the finalization of the new EIA study. This study contains the turbine type of 4MW delivered by Siemens and a monopile substructure.

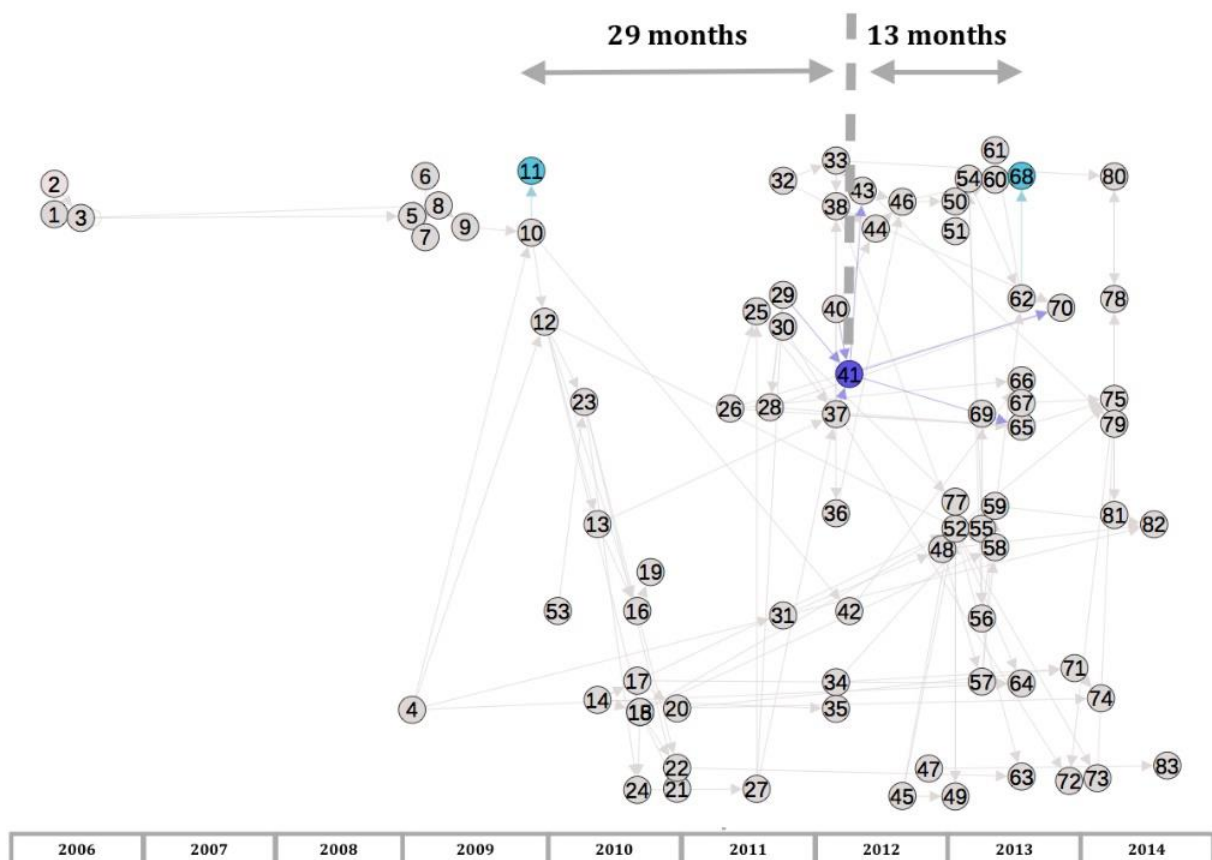


Figure 37 Influence of the change of technology on the EIA document. Event 11, EIA for Bard Gruppe's locations final, Event 41 moment that decision was made that the turbine and construction type would change, 68 new EIA for Gemini.

Event sequences

The variable that influences this pattern was that the expectations of IA and external stakeholders on the project and process were low, Figure 38. Typhoon had great difficulty finding investors for the project. Investors had little faith in the project plan, therefore Typhoon wanted to change the expectations of the IA and external stakeholders (65). Typhoon believed that a change in technology would result in a change in expectations.

Once Typhoon had changed the technology, the expectations of the stakeholders regarding the project and process slowly changed. Its faith in the projects grew (52) when the Danish pension fund also invested in Gemini (49). This increase in faith among the stakeholders in the EIA made that more external stakeholders became interested in the project. This eventually led the banks (external stakeholders) to invest in the project (73) resulting in the financial close for Gemini (75).

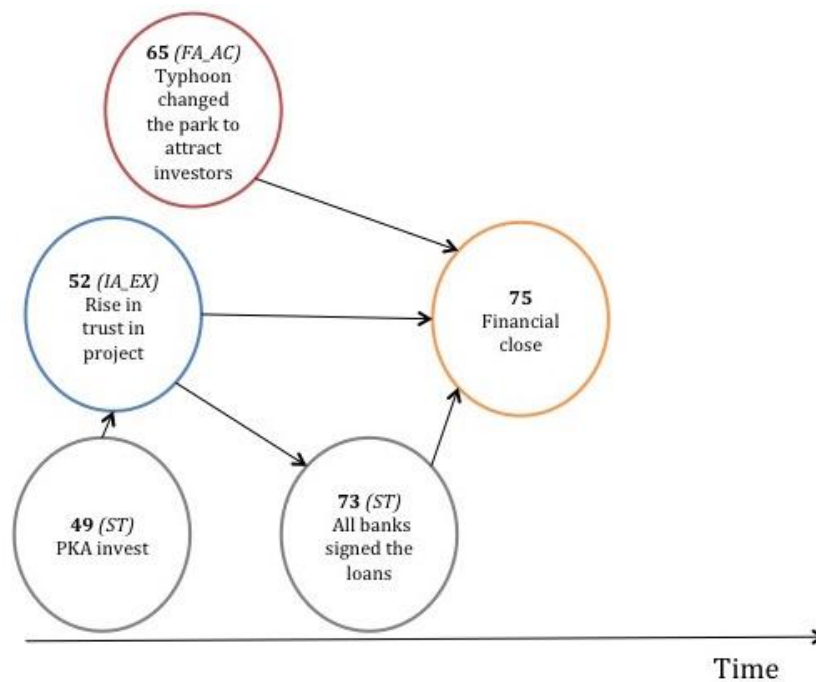


Figure 38 Sequence of events for realising financial close. PKA invest (49), together with change in technology, trust among stakeholders in the IA rises (52).

Pattern

When the events are placed in the conceptual model and the interaction between them, Figure 39, this results in the following pattern. It can be seen that this pattern does not completely follow the conceptual model, because an event in the process (52) is influencing an external stakeholder (73). In the patterns above, we displayed that the context could influence the process. However, this example shows that the process is capable of influencing the external stakeholders, from 52 to 73. If the trust among the stakeholders in the IA had not risen it could be that external stakeholders did not want to invest, due to the possible risks of the project. The financial close is a result of the interaction between formal and informal assessment.

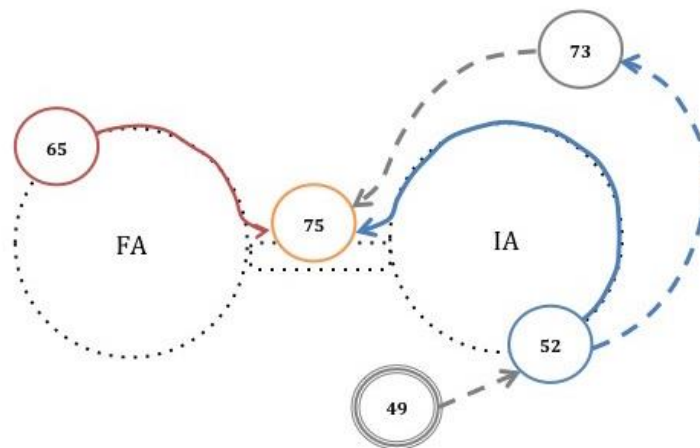


Figure 39 Pattern of financial close. Rise in trust among stakeholders in Gemini (52), because investment of PKA (49) and the technology change in Gemini. More external stakeholder see the rise in trust among the stakeholder in IA (73), so 52 influence, non-intended the external stakeholders as well. Typhoon hopes that the change in the park will have a positive effect on finding investors (65). Financial close (75) achieved.

Mechanism

The mechanism that plays a role here is the context influence; economic and business. The technology was changed by Typhoon to find investors. Economic and business context can shape or influence the engagement/ technology and location strategy. This context influences the expectations hold in the FA. This resulted in that Typhoon changed its strategy by changing the technology. Though this was not enough to change the expectations of the stakeholders in the IA, the change was a combination on the technology strategy as well as the investment.

Other examples of these mechanisms effecting projects

In Belgium, they adjusted the requirement of the EIA, in order to avoid the possible effects on a project when the technology for the offshore wind project is changed. They allow for the EIA to be set up broadly, because they realize that the time between producing the EIA and the moment of construction is long. Since offshore wind energy is a fast changing technology, which deals with a lot of development, it might be so that when the construction starts the technology described in the EIA is not the best choice anymore. In order to avoid delays, because the technology described in the EIA is out of date, Belgium allows a broad set-up.

6.8 Provisional conclusion

In this chapter, the most important patterns identified in the Gemini project have been analysed. The sequence of events has been placed in the conceptual model, which made it possible to clarify the patterns and identify the driving mechanisms behind the patterns. The analysis showed us that some sequences that were identified followed the pattern as defined by the theory where expectations, formed by stakeholders, were followed by actions. This resulted in different forms of interaction between stakeholders, which resulted once more in the formation of expectations.

The analysis indicated a diverse number of driving mechanisms lying behind the patterns. The mechanisms can either be classified as contextual variables or non-contextual variables. Insight in those driving mechanisms can help decision-makers. First, when they are aware of such a driving mechanism they can recognize them and actively anticipate on them, rather than just wait and see what happens. Likewise, decision-makers can choose either to create such a driving mechanism or avoid it to change the process.

Non-contextual mechanisms that were identified are all to do with the stakeholders, namely the level of involvement, stakeholder switch and stakeholders position change. Contextual mechanisms that were identified are, "Place and Community", "Local Policy", "National Policy", "Economic and Business" and "Social-economic system" which will be shortly discussed below.

Place and community

The contextual dimension place and community can be a driver behind patterns and support events. Note however that for Gemini and Nordsee Ost it was not really the actual location of the windfarms that drove the events but rather the secondary effects of the location. Like for Nordsee Ost, it was not that the location of the wind farm that was the problem but more that due to its location, onshore construction was done. Due to this onshore construction, inhabitants feared that the image of holiday spot would be lost and with that their main source of income. Therefore, the driver behind the events was not the actual place but the possible consequences of the place on the community. By elimination or lowering the chance of the consequence occurring, stakeholders affected the events without having to relocate the place of the wind farm. It is therefore important to know that this dimension can affect patterns, however, it is recommended to keep in mind that it might be a consequence that takes place due to this dimension.

Local and national policy

The case exposed that the local and national policy effected the expectations of stakeholders in the project and by that a pattern. Local and national policies can use a variety of policy tools to change the policy and by that the context which can effect patterns in a process. The difference between the local and national policy is the influence of the decision-makers on the embedded policy tools, depending on who the decision-maker is. When the decision-maker is a non-governmental party, the local government is more approachable. This makes it easier to address them with their concerns or ideas.

Economic and business

Gemini also exposed the contextual dimension economic and business. The fear of losing business and economic profit did drive events and affected the Gemini project at different moments in time. Note that the effect of the decision-maker on this contextual dimension is direct just as for the dimension place and community. Decision-makers can eliminate or lower the effect of the contextual change on the pattern for example by adjusting their policy. For example, when they assured that they would involve as many Dutch companies as possible. By doing so, decision-makers took away the fear among some stakeholders and changed the process.

Social-economic system

Lastly, we saw the contextual variable social-economics. The difference between social-economic and economic and business is that the last one is about the shape of the strategy for the engagement, technology and location. While social-economic system is about the economic situation, culture concerns participation and knowledge infrastructure. Energy Valley wanted to protect the local economic situation and this drove their action while BARD Gruppe adjusted their strategy by involving more Dutch companies in the project. The same was seen when Typhoon adjusted the technology for the offshore wind turbines, a strategy change, to attract more investors.

7

Conclusion and Discussion

7. Conclusion and Discussion

7.1 Conclusion

The Environmental Impact Assessment is a tool, set by legally established governance, with the aim of contributing to environmental awareness and protection during the decision-making phase of projects, by requiring an *ex ante* evaluation of probable effects. Thereby it attempts to objectively assess and take into consideration public values. It is not only intended to prevent decisions with unacceptable environmental impact, but also to promote an early incorporation of environmental values. Impactful projects, like offshore wind projects, may generate considerable debate amongst the public. When values and interests of stakeholders are taken into account, it can increase the legitimacy and acceptance of the EIA's process and its outcomes. In the current EIA implementation models, it is not very clear how to anticipate or cope with public opinion, as there are no models that integrate the relationship between informal and formal assessments. That is why this research tried to make a step in exploring the interaction of the Environmental Impact Assessment and the public debate in offshore wind projects. By answering the main question "*How do the Environmental Impact Assessment and the Public Debate interact in decision-making on offshore wind projects?*" in order to provide data that will help to optimize the interaction between the EIA and the public so that the relationship between policy-makers, government, project-owners and the public become more manageable and predictable.

The main findings of this research are summarised in four steps, focusing first on the theoretical understanding of the interaction between the EIA and the public debate. Second, on the method event sequence analysis, making clear that this method has additional value to study processes like the interaction between the EIA and the public debate. Third, on the interaction between the EIA and the public debate, based on the empirical data providing a conclusive inventory of the different patterns and mechanisms which provide more insight in the interaction between the EIA and the public debate. Subsequently, the main research question of this thesis is answered before ending this conclusion with providing a set of practical recommendations as well as suggesting avenues for further research.

7.1.1 Theoretical understanding of the interaction between the EIA and Public Debate

In chapter 3, analysis of the relevant literature provided the answer to the question: How can the interaction between the EIA and the public debate be understood theoretically? This research showed that the interaction between the EIA and the public debate can be described from a process perspective point of view. As far as process research is concerned, two things need understanding, namely, "how things evolve over time" and "why they evolve in this way".

In order to understand "how things evolve over time", we need to know "what happened" (events), "who did what" (activities) and "when" (choices made in time). Insight in those aspects gives use more understanding of the process and the process patterns which can then be used to form a theory of how decisions are made by the EIA and the public interaction within decision making, so the question "why they evolve in this way" can be answered.

The theoretical explanation (conceptual framework) "of the why-question" is based upon the framework of Walker et al., 2011. It was argued that it provides the most suitable framework for this study, as it offers a conceptual insight into complex processes by isolating and highlighting three key factors: interaction, dynamics and contextual influence. The combination of these three aspects, in the framework of Walker, gives a good theoretical explanation of the question why processes evolve in the way they do.

This process knows three forms of interaction (diffusion of knowledge and application). First, there is interaction between actors sided in one group which interact with each other and exchange knowledge. Second, there is interaction among groups of public stakeholders. Consequently, knowledge of one group is shared with another group. Lastly, there is interaction between the EIA and the public debate. Thus knowledge is diffused from the public towards the EIA and the other way around. It has been indicated that, due to these interactions, stakeholders will form expectations. Those expectations can change when new information is diffused among them. Due to changing expectations, the actions of a group might change as well. This pattern of forming expectations and actions accounts for the changeability of the process over time. It goes a long way in explaining the process' specific dynamic. During the process, different expectations will be formed and different actions will be taken which continues during the whole of the process, in a kind of loop, making the process dynamic. This overall process pattern for this study established from theories in the literature is shown in chapter 3.

At all times, a process takes place within a context, which is not static but can change during the length of the process. This makes that at a point in time say "X", the context is "Cx". While at a different moment in time say "Y", the context is changed toward "Cy", see Figure 40. Contextual variables can influence the dynamics of the system, since they influence the evolution of events. The contextual variables used in this study can be found in Figure 40 in chapter 3.

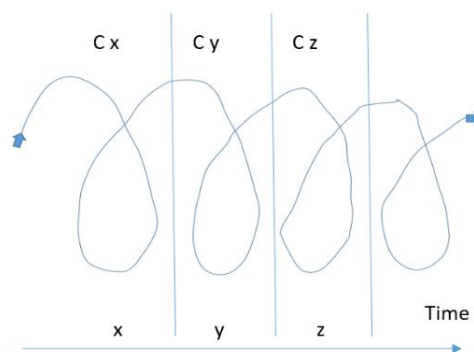


Figure 40 Contextual change during the length of the process. At moment in time x, the context in which the process occurs is Cx, while at moment y the context is Cy. Cx is not the same as Cy, there is contextual change over time.

Concluding, in the literature we found a few important theoretical insights that have been used in this research. First, the process perspective. The literature showed us that the process perspective is useful to create insight in the "what happened" (events), "who did what" (activities) and "when" (choices made in time) to answer and analyse how a process evolves over time. Second, the framework of Walker et al. offers a conceptual insight into complex processes by isolating and highlighting three key factors: interaction, dynamics and contextual influence. This framework has been used as the basis for the conceptual model in this study and to analyse the process data with a theoretical framework. Last, the literature showed the importance of the context, contextual variables, and how it is not static but can change during the length of the process. The factors and dimensions pointed out in the literature have been used to analyse the influence of the context in which the EIA operates and how and in which way the context influences process patterns.

7.1.2 The Event Sequence Analysis and its additional value

In chapter 4, the analysis of the methods provided the answer to the question: *Which method creates insight in the interaction between the EIA and the Public Debate over time and which additional benefit(s) does this method provide?* Research showed that the method event sequence analysis (ESA) is most suitable for process research. This method has been proven most suitable for the reasons below.

Event sequence analysis is a method to define events, the logical relation between events and how each event enables and enlarges the effect of other events. We have seen that with ESA it is possible to investigate how patterns arise, defining dependent variables and the meaning of the patterns for the future. ESA is a method that provides the tools for the systematic identification and comparison of specific sequences of events, which is elementary to the further study of process data.

It has been made clear that the application of ESA for the analysis of the data set has been very productive indeed and has provided a new analytical insight into the interaction between the EIA and the public debate. The following intermediary results have added up to this outcome.

1. Reconstruction of the process

First, the ESA method has made it possible to reconstruct the process in detail over time. With ESA, it is possible to observe the arrangements between the events, because one can arrange the events on a time line creating an event web. Since the events are also classified in types of events, it is possible to show this in the event web as well, for example by giving every type of event a different colour. Furthermore, in the event web, linkages between events, events that affected other events, could be drawn. By combining the steps above, it is possible with the ESA method to draw one big event map which represents a reconstruction of the process. This event map then gives a good overview of when an event occurred, what type of event it was and how it affected other events. The reconstruction of the process was demonstrated in chapter 5, where the total event map of the process was constructed with the ESA method.

2. Insight in the complexity

Second, a process can be viewed as complex because it is dynamic and changes over time, making it hard to analyse it. However, with ESA, a process is reconstructed as a group of event sequences. This way, the process can be divided into smaller parts and event sequences more easily, making it possible to create insight in a part of the process. By focusing on the different parts, it is possible to create more insight in the process than by looking at the whole process as a whole. This has been demonstrated in chapter 5, where parts of the process have been analysed.

3. Identification of the patterns

Third, ESA makes it possible to identify patterns among events and to see how one event might affect, enable or expand other events; the sequence of events. The sequences can be investigated separately and can be compared with what would be expected from the theory and what is seen from the research.

4. Role of mechanism and factors

Fourth, theoretically founded propositions about certain roles or mechanisms concerning the process can be investigated. As mentioned above, patterns are identified and can be investigated separately from the rest of the project. Therefore, insight is obtained in the mechanisms or factors underlying the patterns. Also, the propositions found in the theory were confirmed in the research findings. With ESA, it was possible to create insight in those aspects resulting in recommendations for project owners and stakeholders.

5. Timing of events and actions

Fifth, the ESA creates insight in the moment an event occurs and because of what other event it might occur. The insight in the moment of time of an event in the process can provide additional value for a project owner and stakeholder as more precise advice can be given on a certain action and the possible

results such action may have over time. The research finding showed that it can matter when an event occurs in time and how it affects the process.

In summary, by using the ESA method in this research, a better insight into the patterns of events could be created and how these come to being. This method has proven to have a clear additional value for the analysis of the complex processes that determine the interaction between the EIA and the Public Debate.

7.1.3 Patterns and their driving mechanisms

With the ESA method (chapter 5), an event map has been created for Gemini, identifying all the events and their linkages. In chapter 6, sequences of events have been isolated in order to analyse them. By doing so, the pattern among the sequences has been identified and compared with the conceptual model (chapter 3). We have subsequently looked, for each individual pattern, for a “mechanism” that could explain its shape to answer the sub question: *“Which patterns can be identified in the interaction between the EIA and the Public Debate and what mechanism is behind the occurrence of those patterns for Gemini?”*.

When we looked at the identified patterns, we could conclude that some of them followed the pattern that had been identified in the conceptual model (chapter 3), where expectations are formed by either the stakeholder of the EIA or the public debate. Those expectations are then followed by actions of that party. After that, the other party forms expectations and reacts again. The comment sequence is that expectations formed by group A result in an action of group A, based on the action group B form (or reform) their expectation and react in their turn. This most common pattern can be pointed out as the linear sequence (chapter 4).

In addition to the linear sequence it was notable that a lot of the mechanisms behind the patterns were contextual variables, namely, “Place and Community”, “Local Policy”, “National Policy”, “Economic and Business” and “Social-economic system”. The literature did suggest that the context in which a process takes place is important to take into consideration as well, since it might influence the process. The other non-contextual variables were all related to the stakeholders, namely the level of involvement, stakeholder switch and stakeholders position change.

For a decision-maker, it is important to know if he is able to directly influence the mechanism affecting the pattern. With directly, we mean that a decision-maker can not only anticipate on the possible consequences of his decisions on the stakeholders, but also beforehand change their decision or action. For other mechanisms, where a decision-maker is not able to directly influence, he can still try to anticipate on the mechanism or try to indirectly influence the effect of the mechanism.

Table 12 entails all the mechanisms that have been identified in the Gemini project; including the mechanism definition, if it can be classified as a contextual variable and which stakeholder can directly or indirectly influence the mechanism. The last column indicates where to find an example of the respective mechanism.

| Mechanism; Influence on process pattern | Context variable? | Stakeholder; Influence the mechanism | Pattern example in CH6 |
|---|-------------------|---|------------------------|
| Place and Community mechanism; The attachment level of the community with the place, prosperity and residents income. | Yes | The project owner or decision-maker can directly influence this. For example with additional projects like building new houses that fit the environment or place a bird platform nearby. | 6.1 |
| Local Policy mechanism; The strategies of the local policy and implemented policy tools that drive or support project development. | Yes | When the stakeholder is part of the local policy they can directly influence the mechanism. For example by changing the local strategy. When the stakeholder is not part of the local policy they can indirectly influence the mechanism. For example by asking them to attend to meetings or consultation. That way the local policy might feel involved and obligated to help. Next to that the stakeholder can attempt to anticipate on the strategies and tools of the local policy, | 6.3 |
| National Policy mechanism; The strategies of the national policy, implemented policy tools that drive or support project development. | Yes | When the stakeholder is part of the national policy they can directly influence the mechanism. For example by changing the national strategy with policy tools. When the stakeholder is not part of the national policy they can indirectly influence the mechanism. A stakeholder can try to involve the national policy however this might be difficult. They can however anticipate on the national policy and form their own strategies to minor or upper the effects. | 6.3 |
| Economic and Business mechanism; Strategies that effect the economic or business position regarding engagement, technology or location. | Yes | The project owner or decision-maker can directly influence this. For example by changing it strategy due to technology change in the project. | 6.1, 6.2, 6.7 |
| Social-economic mechanism Strategies that concern with the cultures economic situation, participation and knowledge infrastructure. | Yes | The project owner or decision-maker can directly influence this. For example by looking at the possible effects of the decision on the economic position of locals and anticipate on it. | 6.2 |
| Stakeholder involvement mechanism How, when and amount of involvement the stakeholder gets on the project or process and their influence on the project or process. | No | The project owner or decision-maker can directly influence this. For example by involving stakeholders at the start of the project. | 6.6 |
| Stakeholder change mechanism A stakeholders entering or exiting during a project and it positon (change) in the process. | No | The project owner or decision-maker cannot directly influence this, since they cannot influence if a stakeholder wants to be part of the project or not. However they can adjust their strategies in order not to loss or to loss stakeholders during the project. | 6.4, 6.5 |

Table 12 Mechanisms that can drive process patterns.

Supplementary contextual influence: Historical context

There is an important contextual influence that is not described by either Kolhoff et al. (2009) or Walker et al. (2011) but did have its influence on the EIA contents as well as on the interaction between the EIA and the public debate. This was revealed during the interviews amongst experts who were involved in different projects in different countries. Namely, 'problems and disasters in other projects'. Not only in offshore wind projects but also in other projects that required EIA studies.

For example in Belgium, preceding the new regulations on providing zones for offshore wind development, a project was located near shore and caused a lot of controversy among the public. Eventually, this project was even cancelled. After this, a change took place; the BMM (Beheerseenheid van het Mathematisch Model van de Noordzee) (see Annex VI) was more focused on the values of the public. They did more research on what the opinion of the public was and its underlying values. By publishing more positive news about the projects, they tried to reduce the debates. Now, the BMM also involves public stakeholders early in the process and consults them on the projects.

In Germany, a lot of projects had to deal with major debates, for example the train station in Hamburg and the grid connection. Especially project owners became aware of the influence of these debates on a project. Now, in many projects the initiator tries to involve the public and other parties earlier and let them participate in some way in the decision-making. That way the initiator tries to anticipate and take into consideration the values of public stakeholders during the decision-making phases, to avoid the negative influence of the debates on the project at a later stage.

This earlier participation of the values that public stakeholders hold can now also be seen in some projects in the Netherlands. In projects where a governmental body is the initiator, consultation of the public stakeholders takes place earlier in the project.

From this study, it can be seen that the context: 'problems and disasters in other projects' affects the EIA contents and the manner in which people assess the importance of the interaction between the EIA and the public debate and this influences it as well. This factor can not be included in the classes based upon Kolhoff and Walker. Therefore, we want to introduce an additional class namely: Historical Context.

7.1.4 Overall conclusion

The fundamental issue addressed in this thesis is: *How do the Environmental Impact Assessment and the Public Debate interact in decision-making on offshore wind projects?* The main question can be answered with the model below, Figure 41. We will explain it step by step.

In this research, we looked at the interaction between the EIA (formal assessment) and the public debate (informal assessment) as a process, which is dynamic and changes over time. The dynamic aspect of the process is formed by changing expectations and actions and how they interact with one another. The interactions between the EIA and the public debate took place at different moments in time and in different forms. The dynamics and interaction aspect formed the basis of the model.

In order to observe a process, we looked at the sequence of events that lead to outcomes in the process. In this research, we identified a variety of patterns. However, there was one pattern that was more common than others. This common pattern can be described as the linear sequence (chapter 3). This linear sequence can be explained as follows. First, expectations of a process, public or project are formed. This is then followed by engagement actions, which are then again followed by expectations. This continues throughout the duration of the process. The linear sequence is seen in the basis of the model.

It has also been important to examine whether the sequences are random, chaotic or more predictable, to know if the sequences can be expected in other cases or not (chapter 3). From the analysis of the pattern, it can be concluded that the (linear) sequences of forming expectations and actions are quite predictable and not random or chaotic. However, the driving mechanism behind the sequences, and hence the pattern, is less predictable. Different mechanisms can play a role in the sequences. In this research, we defined the different mechanisms (the driving process motor that can generate the complex behavior of a pattern) that played a role in the development of the sequences; namely contextual and non-contextual mechanisms. Nevertheless, it is often more difficult to predict upfront how the mechanism will drive a pattern and if the mechanism will influence events positively or negatively, because it depends on the nature of the mechanism how this will influence the expectations of the stakeholders.

For a decision-maker, the first step is to recognize that there are mechanisms that can drive a process pattern. When decision-makers are able to identify those mechanisms at an early stage, they might be able to do something about it. For instance, when they see that some stakeholders might fear loss of income, they can actively anticipate accordingly.

In this research, different mechanisms have been identified. Findings suggested contextual and non-contextual mechanisms. The mechanisms are placed within the model, Figure 41. First we will place the non-contextual mechanisms within the model, after that we place the contextual mechanisms in the model.

One of the driving mechanisms that need to be included in the model is the stakeholder. The findings suggested that when a stakeholder switches its position, or enters, this can be a mechanism that drives a pattern. One reason for this is that a stakeholder holds expectations, which can change when it changes its position within their own group. A stakeholder can adjust its expectation to fit its new role. Another reason that a stakeholder has more influence on actions is because its position changed and with that the stakeholder can get a more influential role. Either way, stakeholders can drive patterns and therefore they are included in the model.

Another non-contextual factor, which concluded from the findings is affecting process patterns, is the time of interaction. This follows from chapter 6, where we saw the pattern of the two parties, the fishermen and the nature organizations. The nature organization was consulted at a very early stage of the project, whereas the fishermen were not. The difference due to the timing of involvement was that the nature organization had room to discuss their options and concerns, something the fishermen couldn't. The result was that the fishermen took action which caused the development of a pattern. This wasn't the case for the nature organization. With the addition of the mechanism time of interaction, we want to make clear that the moment the public and the EIA stakeholders intentionally interact is important to take in consideration. We suggest that in the beginning of the process, the intended interaction between the two should be more intensive. The reason being that at that moment in time there is still room for negotiation and changes, which will therefore have less impact than if done at a later stage in the process. The mechanism "time of interaction" is placed in the model above the main interaction between the EIA and the public debate, since it refers to that particular part of the model.

Then there are the contextual mechanisms, which findings suggest these influence the EIA, the public debate and/ or the interaction. Some of the mechanisms mainly influence one specific part of the process. Research revealed that the local policy and place & community mainly influenced the expectations and actions of the public debate, whereas the mechanisms economics & businesses and national policy mainly influence the formal assessment. The social-economic system, political/administrative system and the historical context (additional factor) can influence the

interaction rate of the process between the EIA and the public debate. As mentioned before, there are intended and non-intended interactions between the EIA and public debate. For example, disasters and problems in former projects, the historical context aspects, play a role in the amount of interaction between the EIA and the public. The interviews showed us that especially the intended interaction can therefore change, because stakeholders at the EIA point where more aware of the importance of including other parties.

All these contextual variables have been placed in the model where they are likely to have the most influence, note however that the variables are able to influence every part of the process. In addition to that, a decision-maker can influence the mechanisms, directly or indirectly. The study indicated that a decision-maker can learn from previous projects and invite stakeholders at an earlier moment in time to discuss their opinions and core values. Similarly, the study showed that a decision-maker can anticipate on local inhabitants when they fear something. That way, a decision-maker might be capable to change the process by influencing the mechanisms directly. For the other variables, a decision-maker might not be able to influence the mechanisms directly. Still, they can try to indirectly influence it. For example, by inviting the local or national policy-makers around the table when they discuss the project. For offshore wind projects also applies, most of the time, that they are important to reach the national sustainable energy goals. Because of the national interest in the offshore wind projects, decision-makers might be able to influence the policy tools that are used. Thus, for offshore wind projects, decision-makers might be capable to influence more contextual variables.

Concluding, the research constructed one model, which represents how the Environmental Impact Assessment and the public debate interact in decision-making on offshore wind projects. This model, Figure 41, illustrates the linear sequence of events that can be expected. Further to that, the contextual variables, mechanisms that drive patterns, are added to the model. It is important to keep in mind that the patterns itself are more predictable and mainly follow the linear sequence. However, the effect of the mechanisms on the patterns is less predictable. That is why it is important for decision-makers to be aware of the mechanisms and their potential effect on the pattern. That way, decision-makers can influence the mechanisms directly or indirectly by anticipating on that mechanism. By doing so, they can influence the patterns within the process and by that the process itself.

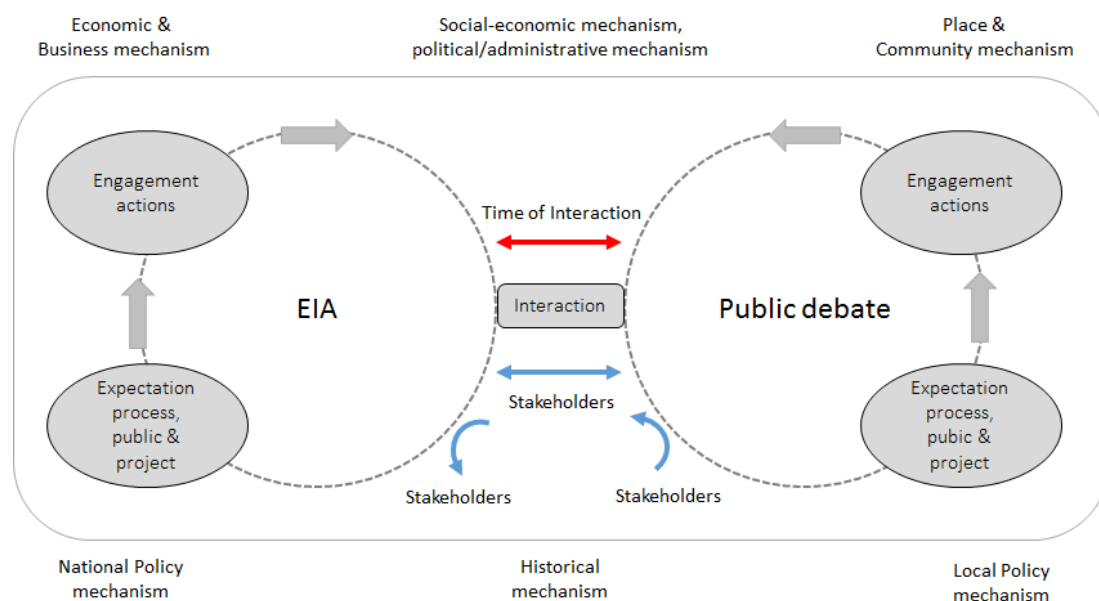


Figure 41 Framework representing the interaction between the EIA and the Public Debate.

7.2 Policy Recommendations

This section will elaborate on some practical recommendations.

7.2.1 Anticipate on mechanisms that can drive patterns

For decision-makers, it can be important to recognize the mechanism and to estimate if the possible pattern that follows is desirable or not. In order to do so, they should consider the possible consequences of the mechanism behind a pattern for different stakeholders. For example, the local habitants of the island in Germany. They feared that due to Nordsee Ost and all the construction work on the island they would loose income from tourists. Decision-makers were able to anticipate on such an expectation that was formed. When they do so, and do it early on, they might avoid a pattern that could delay the process. This is a mechanism that decision-makers can directly anticipate on or influence. However, sometimes it is something that is located beyond their capabilities. In such instances, it can still be valuable for a decision-maker to recognize mechanisms and beforehand anticipate on the possible outcomes. To summarize, recognizing potential mechanisms that can trigger a pattern of events can be of importance for decision-makers.

7.2.2 Participation of the public stakeholders: early and active

Two aspects turn out to be important: actively contacting groups with certain interests as well as doing so in an early stage in the project. The variable 'active participation' may influence the goodwill. The variable 'early participation' can give stakeholders the chance to express their core values. Creating more goodwill regarding a project is important. More goodwill can aid in reducing the objections, debates and controversies resulting in less delays or cancellations. Goodwill among stakeholders may create commitment. Commitment implies that a party is willing to contribute to the implementation of decisions or that it will tolerate the results. Letting stakeholders express their core values in an early stage of the process could offer room to protect their core values or at least take them into account. Each stakeholder has its own interests, and runs the risk that these interests are not sufficiently addressed. When the core values are not harmed - or at least taken into account - during the project and decision-making, this can aid the process. Stakeholders are then less likely to make objections concerning the process or project.

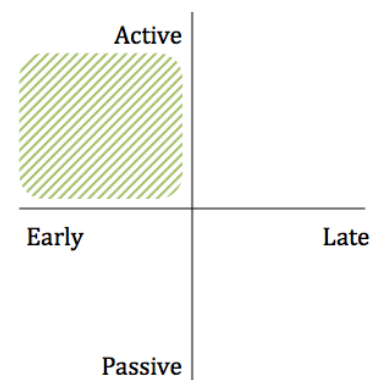


Figure 42 Way of participation of stakeholders in the informal assessment in the project, green cube indicates the favourable position or participation.

7.2.3 Expectations of Stakeholders about the Technology

A solution may be broadening the frame(work) for the technology. This means, that in the alternatives drawn up in the EIA study, the framework for the technology is broadened. One reason for this is to include possible innovations in the technology given that the technology is changing at a fast pace. The development in this technology is high. Therefore, during the EIA process, the prescribed technology might already be out-dated. Nevertheless, including technological innovations is not the only important aspect why the framework for the technology should be broadened. It can also be seen that the expectations of the stakeholders in the IA, but also of the external stakeholders, are influenced by expectations regarding the technology. The case study showed that to attract more investors, Typhoon wanted to change the technology. However, this change in technology was not covered in the EIA but Typhoon was sure that the change of technology would assist in increasing the trust of the investors. When the framework for the technology is set up broadly, the change in technology, as well as a broader range of expectations of stakeholders, is encompassed.

7.2.4 Important Values for stakeholders in Offshore Wind Projects

The research showed that some values were important and played a part in the reaction on the process. In the professional literature it is mentioned that offshore wind project might harm the same values as those for onshore wind. In this research, the value of view or noise, which are important values on land, were not mentioned. However, values that were mentioned were fair economic distribution/loss/profit, tourism, employment and environmental impact. For both Gemini and Nordsee Ost, it seems to be important that the project would also create benefits for the locals/residents in Groningen and Heligoland. These values for far offshore wind farms, but also for farms closer to shore, should be taken into account at the beginning of the project. When the neighbourhood knows from the beginning on that the project will result in a number of benefits, it may result in less resistance.

7.2.5 Add small investment on Secondary Project; to increase Goodwill for the project

Further to this, the research showed that it can have a positive effect on the project when the project owner not only looks at the project, but also tries to create some additional values. As we have seen in Germany, the project owner constructed houses in beautiful colours for the employees on the Island, which fitted the surroundings and resulted in positive reactions from the residents. An interviewer also mentioned that it might be a good thing for project owners to look at creating additional values for the environment at the start of developing the plans for the farm. An example of this might be a bird platform near the offshore wind farm. This platform should be invested in from the beginning of the project so that it can be added in the project plan, but it should also be communicated to the external stakeholders so it can help create more goodwill for the projects. The additional value can be either onshore or offshore.

7.3 Discussion and scientific recommendations

As in all research, this thesis had to restrict it self to a selection of cases. This means that a number of decisions are made that on one hand constitute a practical limitation, while suggesting the fruitfulness of similar research to broaden the dataset and our understanding of the processes that have been studied.

The objective of this research is to create insight into the interaction between the EIA and public debate for offshore wind energy projects. The model that has been created to explain this interaction is based upon the literature and one case study. This makes that future comparative research can further clarify whether this model indeed gives a good representation on the interaction between the EIA and public debate for offshore wind energy.

In relation to this, a practical limitation of this research has to do with the cases studies. The cases (main case and projects) selected in this study were based upon an analysis of the offshore wind sector in Europe. The countries and the case studies were carefully selected based on different principles. This resulted in one main case and two projects, which were publicly discussed. Future research could analyse if the way of interaction between the EIA and public debate for less controversial projects can be compared with more controversial offshore wind projects.

While the method chosen in this research gave great insights in the process, a limitation of this method could be described as time-consuming. For ESA, substantial data collection is needed, which in some situations might be a barrier. Furthermore, the data need to cover a substantial time period. After that, the data need to be coded, which is a considerable time investment. These practical limitations made that the ESA method could only be performed on one case study. For future research, it might be good to perform another ESA study for one offshore wind study, to compare arising patterns.

When contemplating future research, it seems helpful refining analysis by establishing how the importance of events in the ESA can be measured. The ESA method shows the events (collected from the media and interviews) and how an event is linked to other events. When an event has many linkages, one could assume that it has a central role in the network. In comparison with an actor analysis, the actor in the middle of a network plays a central role. The assumption is that this is also the case for an event in the centre of a network. However, the interviews reveal that this is not always the case. Some events had many linkages compared to other events or were influenced by many events. This did not mean that stakeholders rated the event as very important. A gap could be detected between what seems to be a very important event, because of its central position, and what is rated as a very important event among stakeholders.

Besides this, the ESA method does not pay attention to the way stakeholders value an event as important. This information, however, might provide more insight and important information to base advice on, such an event that indicates a strategic change in the project. For example, dividing the project into two separate parts by Typhoon, this might be listed as a central event. However, stakeholders might rate the importance of this event differently. This could indicate that the event was just a common step in the process, although it could also indicate that the stakeholder does not acknowledge the importance of the event in the overall process. From this, two questions may be formulated, namely; "How can the importance of an event in the ESA be measured?" and "How can the opinions of the stakeholders on the events be taken into account with the ESA?"

Another issue that needs to be addressed in future research involves the use of a different perspective. The process perspective has limited the way the research problem was looked at. The process perspective fitted well to study the interaction. From this perspective, it followed that the conceptual model was based upon Walkers framework and the ESA method was selected. This made a good fit, however, it limited the scope of the research. When this research problem is viewed from different perspectives, it might result in different interactions being established. Another perspective that may be taken is the social-technical system view. From that view, technology options and innovations are also considered. A further perspective that might fit this research is the responsible innovation perspective. Future research that takes these perspectives into consideration should show if there are similar findings.

A fourth issue that needs to be addressed in future research is the completeness of the contextual influence on the interaction. From the literature study different contextual mechanisms have been identified. This research showed that they are seen, however, there was also some contextual influence that was not mentioned in the literature. Future research can then take up the challenge if more reliably determining the contextual influence on the interaction is needed.

In relation to this, contextual influences on the interaction also comes from national and local policy. As mentioned before, offshore wind policy has changed a lot. It would be interesting to know what the effects of these changes are on the interaction between the EIA and public debate. In Belgium, the Norther project located near shore had little public attention. One reason was that the people were used to the idea and this was not surprising since the decision had already been made in 2001. It might be interesting to know whether the new policy, where the locations have already been pointed out, might have the same effect as in Belgium or not.

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Leeuwarden Courant, 12-10-2014, Hoe de wind waait... W. Bosma

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Annexes

- I. Annex - Analysis of Europe offshore wind industry
- II. Annex - The interview list and questions
- III. Annex - Rules for coding the incidents for the ESA
- IV. Annex - List of incidents and events for Gemini
- V. Annex - Project Nordsee Ost in Germany
- VI. Annex - Project Norther in Belgium

I. Annex - Analysis of Europe offshore wind industry

This annex contains an analysis of the offshore wind industry in Europe. This analysis is done to gain more insight into the offshore wind developments among other countries.

A. The Europe's current offshore wind market

Offshore wind energy is becoming an important pillar for the future European energy system. It may contribute to the national and European objectives on climate change, energy security and affordable energy (Wieczorek et al., 2013). EWEA forecast suggests that by 2030 as much as 50% of the total wind capacity may be installed offshore (Green & Vasilakos, 2011). This should cover 14% of the European electricity demand. Policy makers in Europe set ambitious goals for offshore wind development (Prässler & Schaechtele, 2012). To reach their objectives some countries need rapid growth of their offshore wind share. This section provides an overview on the current offshore status in Europe and is based upon the EWEA rapport from 2010 till 2014 (Corbetta, 2014a, 2014b, 2014c; EWEA et al., 2014; Ewea, 2011).

a. Development offshore wind energy over the years in European countries

The European wind energy association (EWEA) tries to act as a single European voice to the best interest of the wind energy sector. They provide reports on the key trends and statistics of the offshore wind energy sector. Figure 43 provides an overview of the number of offshore wind farms in the European countries in 2010 and 2014. The size of every wind farm differs, Figure 44 and Figure 45 provide an overview of the growth in offshore wind capacity in 2010 and 2014. This displays that some countries have increased their offshore development over the past years like the United Kingdom, Belgium and Germany. Whereas others have had almost no development such as the Netherlands, Sweden and Ireland.

b. In-depth statistics of the four countries which show the largest growth

The United Kingdom, Denmark, Belgium and Germany have shown the most growth in installed offshore capacity between 2010 and 2014. Figure 46 shows the development of offshore wind capacity yearly. In the year 2013 most offshore wind farms have been installed and the capacity growth was in 2014. Germany and Belgium show a real peak in their growth of wind farms in 2013 compared to 2012.

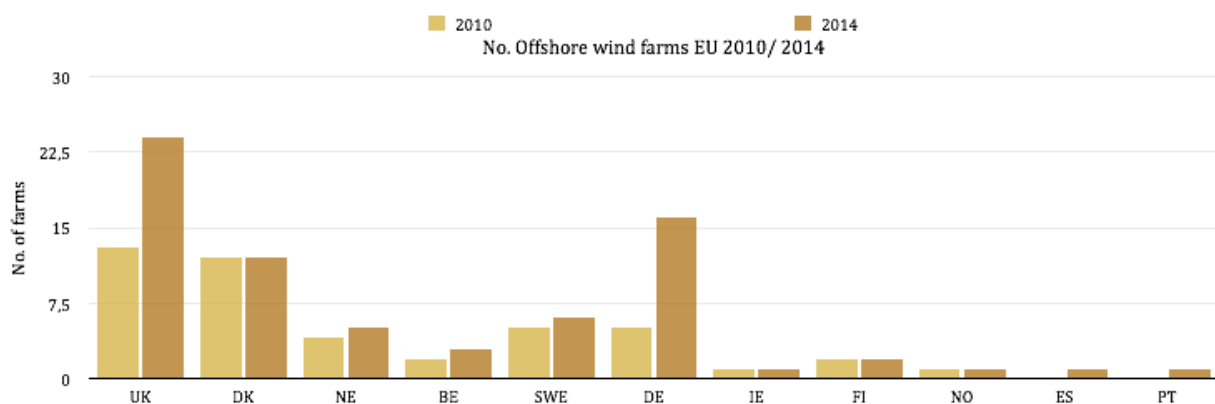


Figure 43 Number of offshore wind farms in the European countries, a comparison among countries between the years 2010 and 2014.

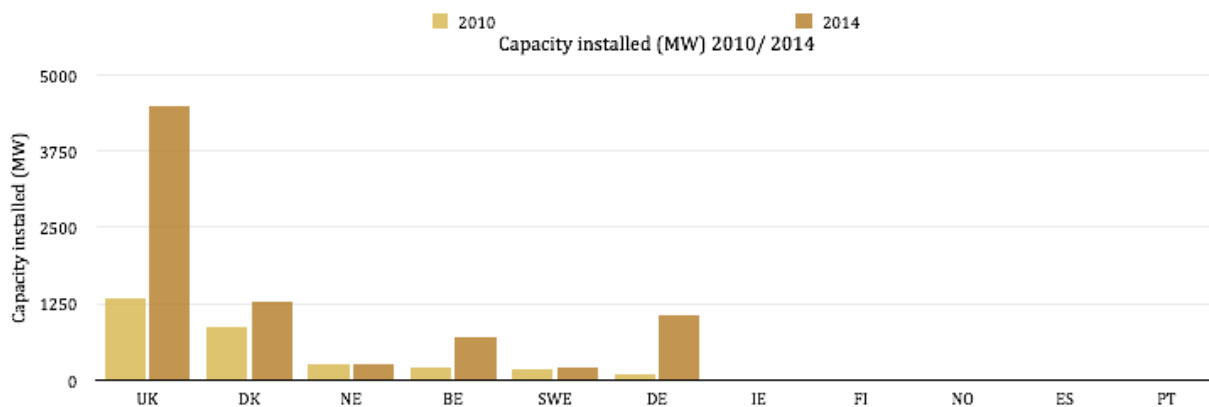


Figure 44 Amount of installed capacity (MW) in the European countries: a comparison among countries between the years 2010 and 2014.

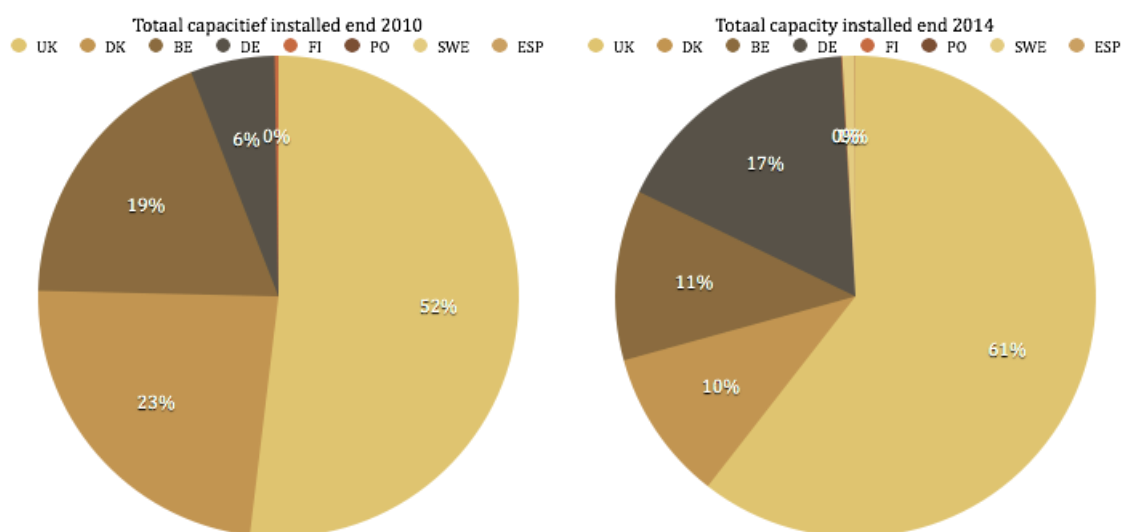


Figure 45 Percentage of the total capacity installed in year 2010 and 2014.

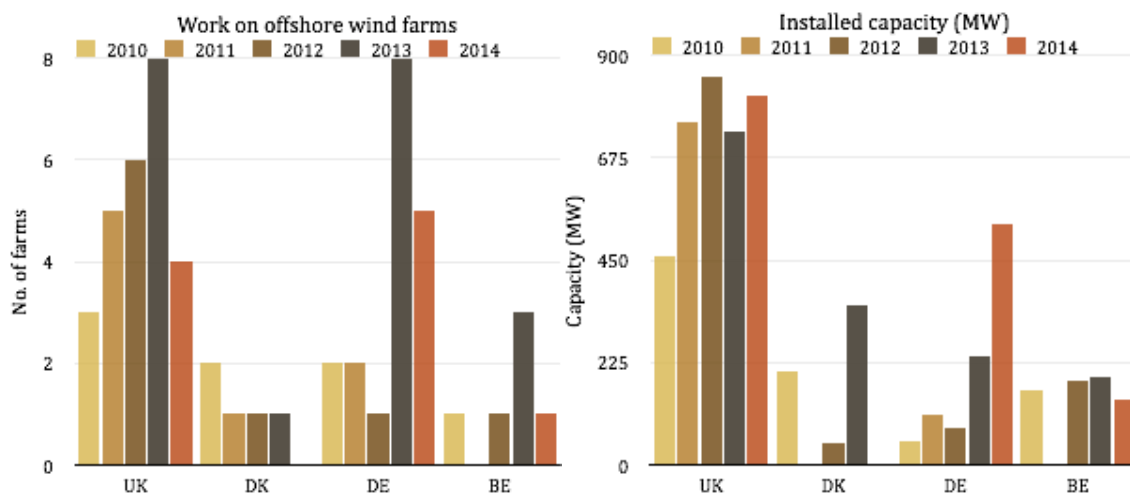


Figure 46 Number and installed capacity of offshore wind farms from 2010 till 2014.

c. Other facts and figures of offshore development in the EU

Over the last years much improvement is seen on different technical aspects on offshore wind energy. For instance the distance to shore has changed over the years, for the reason that far offshore development has been promoted to lower the visual impact (Table 13). When the distance to shore increase this usually relates to an increasing water depth. From 2010 to 2014 the average depth of the offshore wind farms increased by 4 metres. In this period the average distance from the shore varied, from 30 km in 2010, to 23 in 2011 toward 33 in 2014. This variation can partly be explained because in the year 2011 less offshore wind has been developed and it was also nearer to the shore. A small increase of distance has been observed over the past few years. Figure 47 shows that the main structure over the past few years has been the monopile, this structure type is less costly and may be used up to a water depth of approximately 22 metres.

| | 2010 | 2011 | 2012 | 2013 | 2014 |
|-----------------------------|------|------|------|------|------|
| Average Depth (m) | 18,8 | 22,8 | 22 | 22 | 22,4 |
| Average shore distance (km) | 30,1 | 23,4 | 29 | 30 | 32,9 |

Table 13 Average depth and distance of the offshore wind farms in Europe.

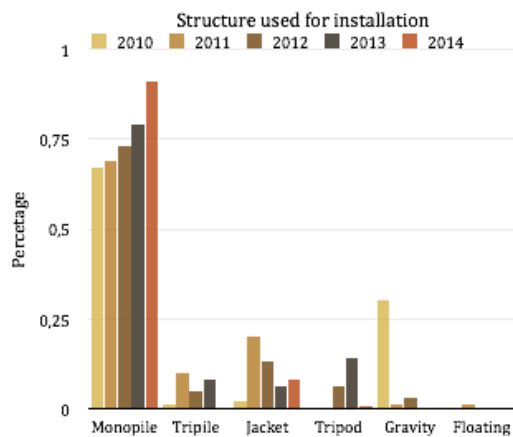


Figure 47 Installation structure in percentage used over the years for the offshore wind farms.

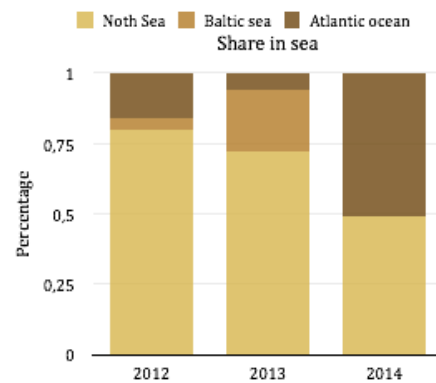


Figure 48 Percentage of construction of offshore wind in the different sea's in the years 2010, 2011 and 2012.

d. Share of offshore wind farms in the different seas

Three main seas surround the European countries, the North Sea, Baltic Sea and the Atlantic Ocean. Each sea has different properties and different points of attention. For instance the weather conditions, depth, sea life and shipping routes. In 2012 most offshore wind construction has taken place in the North Sea. In 2014 this has shifted to the Atlantic Ocean. An explanation for this development is the amount of construction done by the United Kingdom, which is partly surrounded by the Atlantic Ocean.

II. Annex - The interview list and questions

A. Interview list

Among the following persons semi structured interview(s) have been held, Table 14.

| | Name | Stakeholder | Subjects | Goal | Date |
|---|--------------------|------------------------------|--|--|---------|
| 1 | Dick Hermann | Arcadis (Germany) | German EIA regulation and offshore policy/ case selection | Deeper information German EIA policy | 18-3-15 |
| 2 | Annemie Volckaert | Arcadis (Belgium) | Belgium EIA regulation and offshore policy/ case selection | Deeper information Belgium EIA policy | 23-3-15 |
| 3 | Thomas Leiendecker | Arcadis (Germany) | German EIA regulation offshore wind/ Public discourse offshore wind/ Nordsee Ost | Deeper information case (Nordsee Ost)/ and German EIA policy | 29-4-15 |
| 4 | | Ministry of Economic affairs | Gemini/ EZ role within offshore wind policy | Deeper information case (Gemini) | 12-5-15 |
| 5 | Riet Durinck | Arcadis (Belgium) | Norther/ Regulation EIA Belgium offshore wind | Deeper information case (Norther) | 20-5-16 |
| 6 | Ivo de Groot | Arcadis (Netherlands) | Gemini/ EIA | Deeper information case (Gemini) | 26-5-15 |
| 7 | Steef van Balen | Arcadis (Netherlands) | Information for Dutch/German cultural difference on EIA | Orientation | 3-3-15 |
| 8 | Patrick Weijers | Arcadis (Netherlands) | Background information on Dutch/Belgium cultural difference on EIA | Orientation | 31-3-15 |

Table 14 List of interview

B. Questions Interviewers

Table 15 list the questions asked during the interviews. The colon TO applies to whom the question have been asked. ALL: is all interviewees, GE are question specified for the German interviewees, BE for Belgium and NE for Dutch interviewees.

| Nr. | Main Question All Countries | TO | Sub-question | TO |
|-----|---|-----|---|-----|
| 1 | It would be a misconception that offshore wind sides are a problem free alternative of onshore wind sides (Haggett, 2011). Conflicts have been seen in different projects on different levels. | ALL | What is the overall opinion of the German authorities/ groups and public towards offshore wind energy? | GE |
| | | | Wat is de algemene opinie van de Belgische overheid/ groepen en publiek tegen over offshore wind energie? | BE |
| 2 | It is said that the content and the procedure for the EIA is complex, takes time and cost money. Though it is also said that the EIA can help in improving the project plan (by create more value, insight in risks and identify chances). This can result in the optimization of the project or to choose a different approach. Also the EIA is used as a communication tool with the environment. (In the Netherlands this communication is mandatory at different point in time, also it is commonly used during the forming of the policy-making (ARCADIS, 2011)) | ALL | How do you see the value of the EIA in the development process (for offshore wind sides) and as an information source towards the different stakeholders /public? | ALL |
| 3 | From your experience do you see interaction between on one side the EIA used in policy making and on the other side the formation of the public discourse? | ALL | | |
| 4 | View on possible transition between relation EIA and public. | ALL | It is said that there is a transition seen in Germany. From less public involvement in the process toward more public involvement. | GE |

| | | | |
|---|--|--|----|
| | | <p><i>Q: What is your view on this aspect?</i> <i>Q: If so what events triggered this transition process?</i> <i>Q: What does this mean for the EIA process/ contents?</i></p> | |
| | | <p>In zowel Nederland als Duitsland wordt aangegeven dat er een transitie gaande is van minder naar meer publieke betrokkenheid in projecten. Vanuit Nederland zou dit vanuit de overheid gestimuleerd worden (uit interview met Nederlandse Ministerie van Economische Zaken). In Duitsland wordt dit vooral vanuit de projectleiders gestimuleerd (uit interview met ARCADIS specialist op het gebied van MER) <i>Q: Hoe is u visie hierop voor België?</i> <i>Q: Als er een transitie gaande is in België, welke events hebben dit ter weeg gebracht?</i> <i>Q: Heeft dit gevolgen voor het EIA proces of de inhoud?</i></p> | BE |
| | | <p>In Duitsland menen sommigen een verschuiving te zien van minder publieke betrokkenheid naar meer publieke betrokkenheid in projecten. In Nederland lijkt de ontwikkeling juist meer de andere kant op te gaan. Hoe ziet u dat? Voor Nederland? Voor Duitsland? Zo ja welke redenen zijn hiervoor, denkt U?</p> | NE |
| | Main Question Germany | Sub-question | |
| 1 | <p>Germany had a tremendous growth in offshore wind energy, form a capacity of 92MW in 2010 towards a total capacity, begin 2015, of 1049MW (16 offshore wind farms). It is said that this rapid growth is due to the “Energiewende”. Also the offshore wind policy in Germany is designed that is strengths the confidence of the investor by feed in tariffs, mandated grid and cost sharing. BSH need to check if conditions for rejection are there. If not they will approve the side for a term of 25 years, though the construction must begin within 2,5 years.</p> | <p><i>Q: It is said that the construction needs to begin within 2,5 years? If not is it then mandatory to do the applications/reports like the EIA again?</i> <i>Q: When the construction/ like the foundation technique, the number of turbines or the height of the turbines changes does the owner need to perform some of the approvals again? Or add reports?</i></p> | |
| 2 | <p>There are a few central steps formulate for the approval of an offshore wind farm. <i>Applicant submits application to the BSH, which will be checked for completion. The public interest parties have the opportunity to express their opinion though the public display of application documents.</i> <i>Applicant introduce the project show the conflict potential with good and other private/public issues > the BSH determines the scope of the investigation</i> <i>Preparation of the different report, like the EIA (UVS)</i> <i>Consideration of approval > BSH forwards it to public interest parties and associations and displayed in public. Then parties can express their opinions and effects are discussed with all parties.</i></p> | <p><i>Q: The BSH forwards the reports, though do the reports also become available for the public? If not, how is it decided that you are a party who receives the reports (EIA) from the BSH?</i> <i>Q: Are the EIAs for offshore wind projects fully available online? If not, what is the reason behind this?</i></p> | |
| | Main Question Belgium | Sub-question | |
| 1 | <p><i>Op 11 Mei 2011 werd er een aanvraag gedaan voor Norther met een MER voor 3 configuraties. Echter op 18 september 2012 werd dit ingetrokken. Vervolgens werd op 22 augustus 2012 de MER voor configuratie gebied 4 ingeleverd (http://www.mumm.ac.be/).</i></p> | <p><i>Q: Wat zijn de gevolgen, van het opstellen van de vierde configuratie, geweest op het project? Wat is de doorslaggevende factor geweest voor deze verandering?</i> <i>Q: Zou volgens u, een (nog) flexibele vergunningsprocedure hierin een uitkomst geboden kunnen hebben?</i> <i>Q: Wat zijn volgens u de bijkomende voor en nadelen van zo een vergunningsprocedure?</i></p> | |

| | | |
|---|--|---|
| | In de eerste aanvraag werd genoemd dat de concessiegebieden breed opgesteld werden. Dit met het idee dat de offshore techniek een snelle innovatie kent. Na verloop van tijd bleek dat de voorkeur toch uitging naar de 3 MW turbines. Echter om te voldoen aan de eis van minimaal 300 MW moest er een nieuwe configuratie aangeleverd worden. | |
| 2 | <i>De realisatie van het Belgian Offshore Grid en bijgevolg de realisatie van 5 windparken, zal alleen mogelijk zijn in de mate dat alle vergunningen voor het project Stevin, aanleg voor een hoogspanningslijn tussen Zeebrugge en Zomergem, verkregen zijn. (Elia persbericht, 12/11/13).</i> Uit de geraadpleegde bronnen kwam naar voren dat het Stevin-project de verdere ontwikkeling van de BOG kabel en de verder ontwikkeling van het Northor project deels in de weg stond. Er zouden meerdere concessies zijn gedaan in het Stevin-project ten opzichten van de plannen. | Q: Hoe heeft u de onzekerheid van het Stevin-project ervaren? Q: Via welke wegen heeft het Stevin-project zijn effecten gekend in het Northor project? Q: Hoe hadden deze effecten naar u inzien verlaagd kunnen worden? |
| 3 | Volgens de nieuwsartikelen was er vanuit verschillende organisaties weerstand ten aanzien van het Stevin-project. Voor het Northor project is er minder te vinden in de nieuwsartikelen en lijkt er weinig tot geen weerstand te zijn geweest. | Q: Hoe heeft u dit ervaren? Q: Wat is hiervan volgens u de onderliggende oorzaak? |
| 4 | In de afgelopen jaren zijn het aantal windpark en de offshore wind capaciteit (in MW) in België flink gestegen (Bijlage, figuur 1). | Q: Is er naar u beleving aan verandering in de publieke opinie tegenover offshore wind, en zo ja, hoe heeft dit zich vertaald naar het Northor project? Echter in 2009 werd gezegd dat er aan het eind van 2015 in totaal 1446 MW offshore wind geïnstalleerd zou zijn in België (Bilgili et al., 2011). Echter is er op dit moment 712 MW offshore wind capaciteit geïnstalleerd (Bijlage tabel 1). <i>(Het percentage van gerealiseerde offshore wind ligt in België echter een stuk hoger dan in Nederland en Duitsland)</i> Q: Wat is volgens u de voornaamste oorzaak van deze opgelopen achterstand? Q: België heeft het echter beter gedaan dan Nederland en Duitsland, wat is volgens u hier de voornaamste oorzaak van? |
| 5 | Het Hof heeft in 2013 besloten dat burgers de mogelijkheid hebben op een milieuprotest aan te tekenen tegen grote projecten. Vroeger diende dit via de papierenkrant te gebeuren, maar thans volstaat de aankondiging langs digitale weg. Volgens Elia zou dit grote gevolgen kunnen hebben en spreken hun zorgen hier dan ook over uit (Engineering.be, 9/11/13) | Q: Heeft u verandering gezien ten aanzien van grote projecten sinds deze beslissing van het Hof? Q: Hoe staat u tegenover deze beslissing van het Hof? |
| | Main Question Netherlands | Sub-question |
| 1 | Uit analyse van formele (bv. beleidsdocument) en informele (bv. nieuwsgegevens uit kranten en websites) documenten blijkt dat de volgende partijen een rol hebben gespeeld in het besluitvormingsproces: | Zou u, per periode, kruisjes willen zetten in onderstaande tabel indien relevant? En indien nodig, toe willen lichten? Welke gebeurtenissen tijdens dit gehele project zou u typeren als het meest belangrijkst ten aanzien van de MER procedure en waarom? |
| 2 | In 2009 kreeg Bard te horen dat zij de tenders voor twee gebieden hadden gewonnen. Dit was boven hun verwachtingen. Echter, hier waren de Nederlandse bedrijven minder blij mee: <i>De Nederlandse energiewereld, noordelijke bestuurders en ondernemers waren not amused toen het ministerie van Economische Zaken in</i> | Hoe heeft u de keuze van Bard ervaren om meer Nederlandse bedrijven bij het project te betrekken? <i>Ofschoon Bard toezegde zo veel mogelijk Nederlanders bij de bouw en het onderhoud van het project te betrekken, bleef er aarzeling (DvhN, 2014).</i> Heeft deze keuze geleid tot minder weerstand vanuit de omgeving? |

| | | |
|---|---|--|
| | <p>2010 het Duitse Bard toestemming gaf turbines te bouwen in ZeeEnergie en Buitengaats en 4,4 miljard euro subsidie voor de exploitatie toezegde (Dagblad van het Noorden (15/5/14). Eneco en Nuon zijn zelfs een rechtelijke procedure gestart, welke zij vervolgens verloren hebben. Bard koos uiteindelijk wel om Nederlandse bedrijven in het project te betrekken. Het wordt gezegd dat de stichting Energy Value Bard hiertoe geforceerd heeft?</p> | |
| 3 | <p>In het najaar van 2011 nam project ontwikkelaar Typhoon Offshore het plan over. Vervolgens hebben er veel veranderingen plaats gevonden in het plan. Zowel in de locatie, constructie als het aantal windmolens. In het MER zijn daardoor nieuwe alternatieven voor de windparken als voor de export kabels onderzocht. Er worden meerdere oorzaken genoemd voor deze veranderingen</p> | <p>Wat was volgens u de voornaamste reden dat het plan wat er lag gewijzigd moest worden? Hoe staat u tegenover zo een flexibel vergunningsprocedure? Wat zijn volgens u bijkomende voordelen en nadelen hieraan?</p> |
| 4 | <p>Er hebben veel verschuivingen plaats gevonden rondom de stakeholders van dit project. Zo zijn onder andere Bard, Korwind, Greenchoice en HVC uit het project gestapt. Ook zijn er aandeelhouders en financiële partners gewisseld. Dit heeft voor mensen buiten het project mogelijk onzekerheid gezorgd over het project en de realisatie hiervan.</p> | <p>Hoe heeft EZ dit ervaren? Welke positie rol had U als in dit proces? Actief, passief? Hoe groot is volgens u het effect van dit geweest op de vertraging (project bouw pas in 2015 starten i.p.v. 2013) die het project heeft opgelopen? Wat had anders gedaan kunnen worden zodat het effect op het project door de wisseling van stakeholder lager was geweest?</p> |
| 5 | <p>De lokale omgeving (provincie Groningen) was blij met de toekenning van het gebied voor offshore wind energy. Energy Value en de provincie Groningen zagen er vooral veel economische waarde in. Beide gaven zelfs aan meer offshore wind winning in het gebied te willen.</p> | <p>Daarnaast lijkt het vanuit de geraadpleegde bronnen (kranten, energie bladen, internet) dat er lokaal weinig weerstand was tegen het Gemini project. Is het op u ook overgekomen dat er weinig (lokale) weerstand was? Zo ja, wat denkt u dat hiervoor de belangrijkste reden is geweest? Zo nee, wat waren de belangrijkste redenen die aangedragen werden? Echter op 27-8-14 in de Leeuwarden Courant staat: <i>Opgeluchte reacties op Ameland. Het plan om noordelijk van dit eiland en Schiermonnikoog windmolens in de Noordzee te plaatsen, is van de baan. „Een goed besluit”, vindt burgemeester Albert de Hoop. Niet alleen voor de Waddeneilanden, maar ook voor het vasteland.</i> Blijkbaar heeft er toch een verschuiving plaats gevonden waardoor men minder positief over offshore wind is geworden in deze omgeving. b. Wat is volgens u hier de voornaamste oorzaak van?</p> |
| 6 | <p>Vooral de vissersverenigingen hadden de grootste zorgen omtrent de negatieve effecten van Gemini.</p> | <p>Is dit een tegemoetkoming geweest van de project ontwikkelaar? Is in het proces van het maken van het MER volgens u veel rekening gehouden met mogelijke discours vanuit de omgeving? Zijn er volgens u nog andere groepen geweest die erg negatief zijn geweest tegenover het Gemini project?</p> |
| 7 | <p>Er zijn meerder redenen aangedragen voor de moeilijkheden van het vinden van financiële partners.</p> | <p>Wat ziet u als de voornaamste reden dat dit erg lastig ging. Daarnaast wordt gezegd dat na de investering van Europese Investeringsbank de grootste financiële onzekerheid weg was? Klopt dit volgens u?</p> |
| 8 | <p>De Nederlands regering besloot, in samenwerking met de NWEA, dat de kosten voor offshore wind energie met 40% gedaald moest zijn voor het jaar 2020 (Snyder & Kaiser 2009). De manier om dit te doen zou zijn om de offshore wind farms dicht bij de kust te bouwen. Vanwege de diepte, techniek, lengte van de kabels, enz.. Nu zijn er drie locaties gekozen waar de constructie mag plaats vinden een deel buiten de 12 mile zone en een deel binnen de 12 mile zone.</p> | <p>Hoe ziet u deze verandering ten aanzien van het creëren van meer en sneller succes van offshore wind? Nu is er wel al meer onrust vanuit kust provincies dan voor 2009 denkt u dat in de m.e.r. procedure daar meer rekening mee gehouden moet worden? Door bijvoorbeeld de procedure anders in te richten?</p> |

Table 15 Questions asks to interviewers.

III. Annex - Rules for coding the incidents for the ESA

Table 16 describes the rules used to code the incidents. By following this rules the incident have been coded consistent.

| Event types | Rules applied |
|--|---|
| FA_ Expectations of public actors/process | Expectations from stakeholders regarding the process of the project influence the discourse, delay, cancelation, on time. Expectations from project owners of Gemini about or regarding interested parties Protest, support. |
| FA Engagement actions | Action from stakeholders in the FA towards the process and public. Making it more favourable, or to create more acceptance. Changing the strategy, financial structure, technology, process. |
| FA_ Environmental impact assessment | Decision to change the content of the EIA. All legal steps in the EIA, like the public notification. New parts included or excluded. Assessment or notification regarding the EIA. Regarding the EIA contents or process. |
| IA_ Expectations of project/process | Expectations from stakeholders in the IA regarding the project or the process by public parties who influence the discourse. Work, financial, process, project owners, environmental effects, other effects. |
| IA_ Engagement actions | Actions from stakeholders in the IA regarding EIA the process/ project. Not indirect action regarding the process/ project/ owners/ developers of FA. Reaction on EIA. |
| Stakeholder | Stakeholder not belonging to the FA or IA who entering or exciting the process. Stakeholders not belonging to the FA or IA but which actions are regarding the process. |
| Local Policy Context | Local policy actions or expectations that change or might change the contextual influence. |
| National Policy Context | National policy actions or expectations that change or might change the contextual influence. |
| Economic & business context | When business or the economy influence the context. |

Table 16 Rules for coding.

IV. Annex - List of incidents and events for Gemini

The collected incident are a result of a study from news items in data bases: LexisNexis, Howardshome (Arcadis Database), Energiea, the interviews, the intern notations, and the Dutch EIA commission site. A total of almost 200 incidents have been clustered which resulted in 83 identified events. These (incidents &) events are from May 2006 up to the begin of 2015. Table 17 provides an overview of the codes.

| Events, High order class | Event Subclass | Event Code |
|--------------------------|---------------------------------|--|
| Formal Assessment | Environmental impact assessment | FA_EIA 1 (Bard Offshore NL1/GWS Offshore NL1) FA_EIA 2 (Gemini) |
| | Expectations Stakeholders | FA_EX |
| | Actions Stakeholder | FA_AC |
| Informal Assessment | Expectations Stakeholders | IA_EX |
| | Actions Stakeholders | IA_AC |
| Context | Local Policy | C_LO |
| | National Policy | C_NA |
| | Economic and Business | C_ECBU |
| Stakeholder | Stakeholder enter or out | ST |

Table 17 Classification of the event with belonging codes.

A. The list of events for Gemini

Table 18 list events used in the ESA as result of the coding from the incidents for Gemini who are listed in Table 19.

| Numb er Event | Description Event | Year | M on th | Type (code) | Link toward(s) other node(s) |
|---------------------|--|------|---------------|-------------|---------------------------------------|
| 1 | Public review in the project initiation documentation for the EIA North sea location | 2006 | 5 | FA_EIA 1 | 2 |
| 2 | Public participation offshore wind farm Bard offshore NL1 | 2006 | 5 | FA_EIA 1 | 3 |
| 3 | Advice on the directive for the EIA | 2006 | 7 | FA_EIA 1 | 5;8 |
| 4 | The Dutch Government gives provision for certain locations in the North sea, which will be available for the development of offshore wind parks. | 2009 | 1 | C_NA | 12;64;31 |
| 5 | First version of the EIA study for Bard offshore wind farm is available. | 2009 | 1 | FA_EIA 1 | 7;8 |
| 6 | Publication of appropriate assessment (AA) study (Passende beoordeling, PB) for Bard offshore wind farm and cable. | 2009 | 2 | FA_EIA 1 | 7 |
| 7 | Testing period of Bard Offshore 1 EIA and the AA/PB studies. | 2009 | 3 | FA_EIA 1 | |
| 8 | Public review in Bards Offshore 1 EIA study from 3-3-2009 up to 14-4-2009. A total of 98 reactions were received regarding the EIA study. | 2009 | 4 | FA_EIA 1 | 9 |
| 9 | After advice on Bard Offshore 1 EIA study by the commission EIA (Commissie Mer) a revision of the EIA is made publicly available. | 2009 | 6 | FA_EIA 1 | 10 |
| 10 | The Wbr (Wet beheer rijkswaterstaatwerken) permit for the location is granted to Bard. <i>Note: this permit is granted under certain conditions.</i> | 2009 | 12 | FA_EIA 1 | 11;42;43 |
| 11 | Final application for Bard Offshore 1 is opened for a last review. Interested parties may appeal to this final application if they do not agree on some level with the development of the wind farm. | 2009 | 12 | FA_EIA 1 | |
| 12 | Bard officially has the permits (for both locations) to construct the offshore wind farms. | 2010 | 1 | FA_EX | 13;15;16; 23;58 |
| 13 | Certain Dutch parties are not in agreement of the fact that the Dutch Government allotted the grant to Bard. Main reason for this is that it is a German company. | 2010 | 6 | IA_EX | 16;37 |

| | | | | | |
|----|---|------|----|----------|----------------|
| 14 | A news item declares that The Dutch Government policy on offshore wind energy is not clear for (Dutch) entrepreneurs. The risks to invest due to this unclarity are too high. | 2010 | 6 | C_NA | 35;52;18 |
| 15 | Corporations have a high interest for the potential work the Bard offshore project may create. Between 60 and 80 corporations are interested in working together with Bard on this project. | 2010 | 10 | IA_EX | 21;22;24;58 |
| 16 | Eneco and Nuon present objections to EZ on the rights granted to Bard. They do not agree with the decision of the Dutch government to grant the permission for the location to Bard. Therefore they make an appeal to the Dutch Economic affairs. | 2010 | 10 | IA_AC | 19 |
| 17 | The minister of Economic Affairs (Maxime Verhagen) decides that sustainable energy on the grid has priority above other energy sources on the network. | 2010 | 10 | C_NA | 20;64 |
| 18 | Due to the crisis banks have reserves about investing in renewable energy projects, especially large sums for green energy. Therefore it is difficult to find investors for the project. | 2010 | 10 | C_ECBU | 52 |
| 19 | The appeal and objections of Eneco and Nuon regarding the permit granted to Bard is rejected. Agency NL reviewed the appeal and concluded that the permit was rightfully granted to Bard. | 2010 | 11 | IA_AC | |
| 20 | The Dutch minister (M. Verhagen) will change and cut off the subsidies for renewable energy projects that are not beneficial for the industry. | 2011 | 1 | C_NA | 74;71 |
| 21 | The Dutch company HVC receives a 15% interest in the offshore project Bard. | 2011 | 1 | ST | |
| 22 | The Dutch company van Oord is granted the deal for the construction of the offshore wind farm, Gemini. | 2011 | 1 | ST | 63 |
| 23 | In a news item Bard claims that Dutch companies will be involved, as much as possible. | 2010 | 5 | FA_AC | 24;21;22 |
| 24 | The Dutch company Typhoon is hired by Bard for the offshore wind project. Typhoon will provide financial tasks and search for investors for the project. | 2010 | 10 | ST | 27 |
| 25 | Typhoon sees that IA parties and external stakeholders remain sceptical about the Gemini project even after the project is taken over by Typhoon | 2011 | 9 | FA_EX | 37;77 |
| 26 | The project is divided in two, namely the wind farm and the station. This is as a strategy to find more investors at a faster pace for the project. | 2011 | 6 | FA_AC | 65;66;70;25 |
| 27 | Project is entirely under Dutch control. Bard is no longer in lead yet will deliver the turbines? | 2011 | 8 | ST | 25;29;37 |
| 28 | The project is relocated from two separate locations as one farm. This is a strategic choice. Typhoon gives the project the name Gemini. | 2011 | 10 | FA_AC | 65;70;29 |
| 29 | The 4,4 billion euro 's of the government subsidy goes to Typhoon. | 2011 | 11 | FA_EX | 41;28 |
| 30 | News item reveals that Typhoon is uncertain whether they, as one of the shareholders, will remain active in the farm and stay shareholder. | 2011 | 11 | FA_EX | 72 |
| 31 | Belgium and Dutch coast communities come together to form a final opinion on offshore wind farms. | 2011 | 11 | IA_AC | 48;82 |
| 32 | Project initiation documentation for the offshore cables (connecting Gemini and others near Gemini) is open for public review. It is not specifically for the cable for Gemini. Arcadis is granted this project. It is for the overall layout of the cables in this area. | 2011 | 11 | FA_EIA 2 | 44;33 |
| 33 | A discussion is being held on performing one large EIA study by the local governments and State for the area since many different projects will be realized with an impact on the environment. | 2012 | 4 | FA_EIA 2 | 38;43;79;80;36 |
| 34 | The State Groningen is of the opinion that if Tennet provides the offshore grid this would interest potential investors. They also | 2012 | 4 | C_LO | 59;71 |

| | | | | | |
|----|--|------|----|----------|--------------------|
| | want to increase the amount of offshore wind turbines in the area. | | | | |
| 35 | Dutch companies are interested in investing in offshore wind farms. | 2012 | 4 | C_ECBU | 34 |
| 36 | A news item says that the EIA study gives an impression of pirate stories. The EIA discloses information on shipwrecks, bombs, etcetera. | 2012 | 4 | IA_EX | 46 |
| 37 | At first Bard would deliver the turbines. Due to comments about the company and the risks involved Typhoon chooses another company to supply the turbines. Siemens will take over. Due to this decision Bard is now totally removed from the project. | 2012 | 4 | FA_AC | 41;65;38 |
| 38 | In the RCR (rijkscoördinatie plan) the new turbine type will be added. The farm needs to be redesigned again due to this change. | 2012 | 4 | FA_EIA 2 | 70;52 |
| 40 | A news item discloses that Typhoon is motivated for the project by investing in it and performing an EIA for Gemini. | 2012 | 4 | FA_EX | 44;41 |
| 41 | From this moment it is clear that the turbine type and the construction type will be different. | 2012 | 5 | FA_AC | 65;70;43 |
| 42 | The ministry of Economic affairs is deciding on taking legal steps against Typhoon to insure the fulfilment of financial obligations. | 2012 | 5 | IA_AC | 66 |
| 43 | Application to change the Wbr permit takes place due to the change in the turbine type. The Wbr application by Bard was on a different turbine type. Therefore a change is needed for the Wbr application. | 2012 | 6 | FA_EIA 2 | 46 |
| 44 | The start notation has changed, now the farm is also included. | 2012 | 7 | FA_EIA 2 | 46 |
| 45 | The EIB (European Investment Bank) will officially invest in the Gemini project. | 2012 | 10 | ST | 52;77;49 |
| 46 | The first publication of the EIA for Gemini farm and cables is opened for public review together with a fitting assessment. This study is provided by ARCADIS. The input information was gathered from the older version of the EIA and a fitting assessment. | 2012 | 10 | FA_EIA 2 | 50;60 |
| 47 | News item discloses that Greenchoice and Delta are in contact with Typhoon to obtain the energy provided by the farm. | 2012 | 12 | ST | 83 |
| 48 | News item discloses that the decision to place offshore wind farms closer to shore might create more resistance. The news item states that the resistance was lower due to the fact that the wind farm was located further off the coast. By placing the farms closer to shore this resistance might become a problem. | 2013 | 1 | IA_EX | 57;82 |
| 49 | The Danisch pension fund (PKA) will invest 120 million euro's in the Gemini. | 2013 | 2 | ST | 52 |
| 50 | The new design for Gemini including the alterations has been granted a permit. | 2013 | 2 | FA_EIA 2 | 60 |
| 51 | The new design (ontwerpbesluit) for the Gemini offshore wind farm and the cable route is opened for commentary. | 2013 | 2 | FA_EIA 2 | 54 |
| 52 | A rise in trust is attained due to new investors, an increase in EIB investments and the change of the design of the farm. | 2013 | 3 | IA_EX | 63;73;49; 75;64 |
| 53 | Energy value, an actor from Groningen insists that Bard involve Dutch firms in the process. Thereby assuring that not only Germans profit from the business but that the Netherlands also has a share. | 2010 | 3 | IA_AC | 23 |
| 54 | 11 views by 11 official bodies were admitted on the EIA of Gemini. | 2013 | 4 | FA_EIA 2 | 56;62 |
| 55 | Fishermen are concerned about the track of the cable and the offshore wind farm, Gemini. They fear that during the developmental and the operational phase that fishing will not be possible around the cables, therefore missing a part of their fishing quota. They make a formal objection to the plans. | 2013 | 5 | IA_EX | 54;69 |
| 56 | The fishermen have dropped their appeal against the Gemini plans and its EIA. By doing so the permits become irrevocable. | 2013 | 5 | IA_AC | 62 |

| | | | | | |
|----|--|------|----|----------|-------|
| 57 | A news item discloses that the local political party in Groningen, the PvdA, would prefer more wind at sea rather than more wind turbines on land. | 2013 | 5 | C_LO | 58;59 |
| 58 | A news item also discloses that Gemini might generate more work in Groningen and surrounding areas. | 2013 | 6 | IA_EX | 59 |
| 59 | Gemini wishes for more wind energy, but the island of Ameland is pleased that this will not take place. | 2013 | 6 | IA_EX | 82 |
| 60 | Commission EIA gives a review advice on the EIA of Gemini and cable. | 2013 | 6 | FA_EIA 2 | 61;68 |
| 61 | Spatial plan (Inpassingsplan) for Gemini is established | 2013 | 6 | FA_EIA 2 | |
| 62 | Besides the appeal by the fishermen on the view of the EIA no further appeals have been made. Now this appeal has been revoked the project has become irrevocable. The project does not have to be reviewed by the Raad van State. | 2013 | 8 | FA_EX | 61;68 |
| 63 | Van Oord obtains a 10% share in Gemini. | 2013 | 8 | ST | 73 |
| 64 | A news item states that Gemini is a good step towards attaining the Dutch climate goals. | 2013 | 8 | C_NA | |
| 65 | Typhoon changes in the farm hoping that the project will be more attractive for investors/ financiers. | 2013 | 8 | FA_AC | 75 |
| 66 | EZ and Typhoon have consulted each other, thus preventing a lawsuit by EZ. | 2013 | 8 | FA_AC | |
| 67 | A consortium is formed. | 2013 | 8 | FA_AC | 66;75 |
| 68 | Suitability plan for project is activated and is irrevocable. | 2013 | 8 | FA_EIA 2 | |
| 69 | Fishermen have permission to fish during the construction phase in the vicinity of the cable track. They are content with this outcome. | 2013 | 5 | FA_AC | 56 |
| 70 | Part of the EIA process must be redone. Typhoon says that the changes in the original EIA are the main reason for the delay of the project. Originally the project construction would have started in 2015. | 2013 | 12 | FA_EX | |
| 71 | The Dutch Government presents a new structural view for wind and sea. Tennet is appointed as network manager of the offshore network. | 2014 | 1 | C_NA | 74 |
| 72 | Typhoon sells the last shares in the project. Northland takes the shares over from Typhoon. Typhoon is now out of the project. | 2014 | 1 | ST | |
| 73 | All the banks have signed the loans for the project. | 2014 | 1 | ST | 75 |
| 74 | Minister Kamp does not expect that all permits issued in 2009 for offshore wind locations will be realized. According to him these do not fit in the new system and are out of date technologically. | 2014 | 4 | C_NA | |
| 75 | New item: The financial completion has been achieved for Gemini. | 2014 | 5 | FA_AC | 72 |
| 77 | Once the EIB effectuated the loan the confidence in the Gemini project rose. | 2014 | 5 | IA_EX | 52 |
| 78 | The heliport for flights to and from the offshore wind farm will be operational in 2016. | 2014 | 5 | FA_EX | |
| 79 | The Eemshaven is the location for the installation of the helicopter platform. The flights to the Gemini farm will take place from the Eemshaven. | 2014 | 5 | FA_AC | 78;81 |
| 80 | An EIA is necessary for the construction of the new helicopter platform. | 2014 | 5 | FA_EIA 2 | 78 |
| 81 | Helicopter flights from the Eemshaven may have an effect on the region, nature and environment. Sound/noise may cause a burden for the surroundings. | 2014 | 5 | IA_EX | 80 |
| 82 | Ameland reacted positively when the government decided not to place extra windmills in the area. It would have had an impact on the lovely nature there. | 2014 | 8 | IA_EX | |
| 83 | Delta will acquire all the energy from Gemini and has signed the contract. | 2014 | 11 | ST | |

Table 18 List resulting the identified events for Gemini, Giving the number, short event description, year and month, code and the identified link towards other nodes.

B. Incidents identified for Gemini

In this table all the incidents have been listed. The incidents are gathered from news articles and sector magazines. ID, is the code of the incidents (in English and Dutch). Also the date is provided, a short description of the incident. The event number the incident belong to and finally the category and the source of the incident. The whole text of the papers in which the incidents are described are not included here. They can be found in the additional logbook.

| ID | Date | Incident | Event | EIA_EX | EIA_AC | EIA_EIA | PD_EX | PD_AC | ST | CO_LO | CO_NA | CO_EC | Source |
|----|----------|--|-------|--------|--------|---------|-------|-------|----|-------|-------|-------|-------------------------|
| 1 | 15-04-14 | According to Van Oord Gemini will create more work for locals in Groningen, they want to fulfil the 50 positions with locals. | 58 | | | | X | | | | | | Nu.nl |
| 2 | 15-04-14 | Energy Valley find the offshore wind farm in front of the Groningen coast a good development due to the creation of more work. | 58 | | | | X | | | | | | Nu.nl |
| 3 | 13-04-12 | State of Groningen set goal of "at least 1000 people work in offshore wind sector in 2030". | 57 | | | | | | | X | | | dagblad van het Noorden |
| 4 | 13-04-12 | Eemshaven could profit from the growing offshore wind sector according to Wilma Mansveld due to their favourable position for the German parks and future Dutch parks. | 58 | | | | X | | | | | | dagblad van het Noorden |
| 5 | 13-04-12 | State of Groningen wants to have more offshore wind turbines in that sea area, for that they already invested 35 million in the shore. | 57 | | | | | | | X | | | dagblad van het Noorden |
| 6 | 13-04-12 | State of Groningen thinks that if TenneT will take the energy network for its bill it will stimulate investors. Now the investors would have to pay. | | | | | | | | | | X | dagblad van het Noorden |
| 7 | 02-08-13 | Van Oord says it want to have a 10% share of the Gemini farm. | 63 | | | | X | | | | | | van Oord |
| 8 | 02-08-13 | News item say Gemini would be a big step forward for the climate goals of the Dutch government. | 64 | | | | | | | | X | | Dagblad van het noorden |
| 9 | 15-05-14 | The Gemini project will go through, the financials are closed. | 75 | | X | | | | | | | | Dagblad van het noorden |
| 10 | 29-03-13 | Less suspicion because they found investors for Gemini. | 52 | | | | X | | | | | | Energieia |
| 11 | 24-07-13 | Typhoon hopes to closer end 2013 to get the financial close. | | | | | | | | | | | Opiniedebat |
| 12 | 24-07-13 | PvdA, supported by VVD and CDA want a feasibility study to place wind farms closer to shore. Within the 12 mile zone. | 71 | | | | | | | | | | Energieia |
| 13 | 24-07-13 | Typhoon wants to show it is the right operation, by showing all the risks and divided them over reliable parties. | 26 | | X | | | | | | | | Energieia |

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|----|-------------|---|----|--|---|---|---|---|---|---|---|--|-------------------------|
| 14 | 24-07-13 | Gemini deleted due to optimization of the turbines, more energy en less environmental impact. | 41 | | X | | | | | | | | Opiniedebat |
| 15 | 24-07-13 | A new item say that the politic debate is not about to develop more offshore wind, it is more about better use of the existing ones. | 74 | | | | | | | | X | | Energieia |
| 16 | 23-04-14 | The state of Groningen finds that the government needs to choice for the farms above the 'Wadden'. This would be cheaper and would be possible to provide the possibility of sharing cost for infrastructure. | 57 | | | | | | | X | | | Dagblad van het Noorden |
| 17 | 23-04-14 | The Nature and Environmental federation (Natuur en miliefederatie Groningen) is in flavour of more wind energy around the Gemini farm. | 59 | | | | X | | | | | | Amelandblad |
| 18 | 04-09-14 | No separate test location on sea though might come some test turbines in Gemini, so that they can use their grid. The sector was hopeful that this could help to stimulate the government to invest in offshore wind and to get more knowledge. | 83 | | | | | | | | X | | Dagblad van het Noorden |
| 19 | 06-12-13 | Interest Organization of the fishermen have withdrawn their objection so nothing stands in the way of the licenses for Gemini. | 56 | | | | | X | | | | | Energieia |
| 20 | 06-12-13 | The licensing procedure for Gemini needed to be done partly over by Typhoon Offshore in the first half of last year matched the plans for the wind farm. | 70 | | | X | | | | | | | Dagblad van het Noorden |
| 21 | 22-11-15 | The energy company Delta (zeeuws bedrijf) contracted for a period of ten years to take all the energy delivered from Gemini. | 84 | | | | | | X | | | | Energieia |
| 22 | 01-01-09 | The Dutch government decides that the sea area is available for wind energy farms. | 4 | | | | | | | | X | | Dagblad van het Noorden |
| 23 | 01-01-10 | Permit for exploration of Gemini towards BARD. | 13 | | | | X | | | | | | het financieele dagblad |
| 24 | ? | Van Oord ask Bard to look at the construction plan of Bard, because they were sure it could become cheaper/ different. | 41 | | X | | | | | | | | Dagblad van het Noorden |
| 25 | 03-08-13 | Energy Valley see Gemini as an important way to reach their ambitions. They hope that it will increase employment in the Eemshaven and investors. | 58 | | | | X | | | | | | Dagblad van het Noorden |
| 26 | najaar 2011 | Typhoon change the positions of the offshore parks from two (ZeeEnergie and Buitengaats) towards one. So new permissions needed. | 28 | | X | | | | | | | | Dagblad van het Noorden |
| 28 | 03-08-13 | Typhoon says that their change of plans influenced the finance process. | 65 | | X | | | | | | | | Dagblad van het Noorden |
| 29 | 03-08-13 | Typhoon has problems with the ministry of economic affairs about the bank guarantee, should be in 2011 though typhoon did not wanted that till the licenses were round. | 66 | | X | | | | | | | | Dagblad van het Noorden |

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| 30 | 03-08-13 | Energy Valley would like to see that next to the 600MW offshore wind energy it would increase future. One argument that it would be cheaper. Energy Valley say the government should make room for 8000MW offshore wind. | 59 | | | | X | | | | | | Dagblad van het Noorden |
| 31 | 15-05-14 | The Dutch energy world, northern directors and entrepreneurs were not amused when the Ministry of Economic Affairs in 2010, the German Bard gave permission to build turbines in ZeeEnergie and Offshore and 4.4 billion euros promised subsidy for operation. | 13 | | | | X | | | | | | nrc.next |
| 32 | 15-05-14 | Bard says that will involve Dutch companies as much as possible for the construction and maintenance. | 23 | | X | | | | | | | | Dagblad van het Noorden |
| 33 | 15-05-14 | News item say that still sceptic about the Gemini project after Typhoon took over because man behind the business had a company who went bankrupt. | 76 | | | | X | | | | | | Dagblad van het noorden |
| 34 | 15-05-14 | Still concerns from observers, because typhoon did not give the ban guarantee which should have been done in 2011 to the ministry of EZ. | 76 | | | | X | | | | | | Dagblad van het noorden |
| 35 | 15-05-14 | The belief in Gemini got a boost after the loan of the European Investment bank (EIB) in January of 5000 million euro, mostly done after high critics on a project. | 77 | | | | X | | | | | | Dagblad van het noorden |
| 36 | 15-05-14 | Construction of Gemini begins in the summer of 2015, so that the reproduction of the porpoises (bruinvissen) will not be disrupted . | | | X | | | | | | | | Energieia |
| 37 | 15-05-14 | Gemini one year delay, typhoon says it is because of the adaption that had to be made to the original plan. | 70 | | | X | | | | | | | Dagblad van het noorden |
| 38 | 16-06-12 | Gemini wind farm is one of the candidates for the "testing ground" that is a part of the deal between the Green deal, Energy valley, NWEA and ministry of EL&I. | | | | | | | | | | | Energieia |
| 39 | 03-08-13 | Nortland Power gets majority stake from the Gemini farm. They get the lead in the further development and exploitation of the farm. | 75 | | X | | | | | | | | NRC Handelsblad |
| 40 | 03-08-13 | Director Gerrit van Yards platform Energy Valley, which advocates a strong energy sector in northern Netherlands, calls the formation of the consortium "the greatest breakthrough in the development of Gemini. | 67 | | X | | | | | | | | Dagblad van het noorden |
| 41 | 03-08-13 | New Item say due to an internal consultation between typhoon and ministry of EZ a lawsuit could be avoided. | 66 | | X | | | | | | | | Dagblad van het noorden |
| 42 | 08-05-12 | Michael van der Heijden, the CEO of Typhoon Offshore: "It is our task to ensure that the money is available to realize the wind farm that is why we want the farm to let as many electricity supply at the lowest possible cost. We design it so that investors are willing to put money on the table for the implementation. The choice of the right turbine is of | 41 | | X | | | | | | | | Dagblad van het noorden |

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| | | utmost importance. So we make sustainability financeable. " | | | | | | | | | | | |
| 43 | 08-05-12 | The lighter construction of the Siemens turbine, there are far fewer piles needed: 150 instead of 360. The Siemens wind turbines have a higher yield because they start to turn previously. However, they can at the same maximum wind speed as other turbines. That means Gemini ten % more power than can produce then estimated. | 41 | | X | | | | | | | | Dagblad van het noorden |
| 44 | 08-05-12 | The adjustment according Typhoon Offshore led to renewed interest in the shares in the project. For the time being Typhoon Offshore doing business exclusively with the two companies in the energy industry, which is now all the figures recalculate their chances and risks. | 41 | | X | | | | | | | | Dagblad van het noorden |
| 45 | 08-05-12 | The financing of the wind farm Gemini north of Schiermonnikoog seems imminent. Two major parties in the energy sector planning to buy 75% of the shares. She currently checking the figures with which the project is based. | 72 | | | | | | X | | | | Dagblad van het noorden |
| 46 | 08-05-12 | Construction should begin in August 2013. The turbines must provide electricity by 2015. The government provides for the operation of Gemini in the first fifteen years up to 4.5 billion subsidies. | 40 | | X | | | | | | | | Dagblad van het noorden |
| 47 | 08-05-12 | Interest in shares increased after Typhoon Offshore modified the design of Gemini. | 52 | | | | X | | | | | | Nom.nl |
| 48 | 29-03-13 | Typhoon Offshore this Wednesday reported that the financing of the wind farm is around Gemini and its construction autumn 2014 begins. There is still a stretch, he says, but be sure to put all signature in the third or fourth quarter. | 75 | | X | | | | | | | | Dagblad van het noorden |
| 49 | 29-03-13 | First, there was great reluctance because the plan and the grant was awarded to a foreign group in the North, the German Bard Group. Energy Valley attempted to limit the "damage". It forced Bard off the promise that half of the work that would bring the farm would end up with Dutch companies. | 53 | | | | | X | | | | | Dagblad van het noorden |
| 50 | 29-03-13 | That made many people from the world of energy a little suspicious towards the developer of Gemini and his style of work. Moreover, it is not easy to find investors for offshore wind farms. | 52 | | | | X | | | | | | Energieia |
| 51 | 12-10-12 | EIB, give 500 million euro tot Gemini, if they say it is a good project with their experience it is a good sign. | 45 | | | | | X | | | | | Dagblad van het noorden |
| 52 | 12-10-12 | Government gives 4,5 billion to Gemini, though now a legal procedure because typhoon did not get the bank guarantee, though do hope that the projects goes on. | 64 | | | | | | | | X | | van Oord |

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| 53 | 16-05-13 | De PvdA'er: "We zitten toch met het probleem dat windmolens op land veel weerstand oproepen. Ik investeer liever tegen een bescheiden rendement in nieuwe techniek, zoals windenergie op zee, dan dat we nog meer wind op land moeten slikken. 850 megawatt in onze provincie is echt de limiet. Voor de werkgelegenheid in de Eemshaven zou het bovendien goed zijn als het Rijk naast het geplande windpark Gemini boven Schiermonnikoog meer windparken toestaat." Moorlag denkt dat provincies met slimme financiering een belangrijke rol kunnen spelen bij de vergroening van Nederland. | 57 | | | | | | | | | X | | Dagblad van het noorden |
| 54 | 17-09-13 | Nother wil misschien een meerderheidsbelang nemen in het Gemini windpark, serieus blij uit financieel risico wat ze nu al op zich nemen. | 72 | | | | | | | X | | | | Dagblad van het noorden |
| 55 | 13-12-12 | Greenchoice en Delta in gesprek met Typhoon over afnamen elektriciteit. | 47 | | | | | | | X | | | | De Telegraaf |
| 56 | 27-08-14 | Ameland opgelucht na besluit geen extra windmolens noordelijk van het eiland, de eiland hebben hun best gedaan dit te ver komen, vanwege scheppen, uitstraling. | 82 | | | | | X | | | | | | Leeuwarden Courant |
| 57 | 18-04-12 | Schiermonnikoog -Gemini krijgt meer windmolens dan gedacht. | 59 | | | | | X | | | | | | Leeuwarden Courant |
| 58 | 14-04-12 | Nieuwsitem: Nederlandse energiebedrijven staan te popelen om windmolenparken aan te leggen op zee. | 35 | | | | | | | | | | X | NRC Handelsblad |
| 59 | 30-08-11 | Bard trekt zich terug, project wordt 100% Nederlands. | 27 | | | | | | | X | | | | Telegraaf |
| 60 | 12-02-11 | Het concessiegebied boven Schiermonnikoog heeft nog een onderscheidend kenmerk: het is erg groot. Dus ligt de gedachte voor de hand om daar alle Nederlandse windturbines op zee bij elkaar te zetten. Dat maakt bouw en onderhoud doelmatiger en goedkoper dan wanneer de energiewinning op zee wordt verspreid. Qua ligging en diepte hebben de Nederlandse Waddenzeehavens een heel gunstige uitgangspositie voor de bedrijvigheid die dat met zich meebrengt. | 57 | | | | | | | | | X | | Opiniedebat |
| 61 | 12-02-11 | Bard heeft toegezegd dat helft van het werk voor Nederlandse bedrijven is. | 23 | | | X | | | | | | | | Dagblad van het noorden |
| 62 | 12-02-11 | Bouw moet in 2013 gebeuren Gemini. | | | | | | | | | | | | Dagblad van het Noorden |
| 63 | 12-02-11 | Noorden vind dat wind energy op zee veelbelovende nieuwe industrietak is, en verdient een duw in de rug, hebben om versterking van minister Verhagen gevraagd. | 57 | | | | | | | | | X | | Dagblad van het Noorden |
| 64 | 26-01-11 | Van oord wind de deal voor Gemini. | 63 | | | | | | | X | | | | De telegraaf |

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| 65 | 05-07-13 | MER en andere besluiten voor offshore windpark liggen ter inzage. Besluiten worden door EZ bekend gemaakt. | 51 | | | X | | | | | | | Dagblad van het Noorden |
| 66 | 05-05-13 | Informatieavond om mondeling de zienswijze naar voren te brengen. | 51 | | | X | | | | | | | Kamerbrief |
| 67 | 05-07-13 | 11 zienswijzen van 11 instanties naar voren gebracht. | 51 | | | X | | | | | | | Kamerbrief |
| 68 | 05-07-13 | Voor het inpassingsplan is een MER opgesteld. | 51 | | | X | | | | | X | | Energieia |
| 69 | 02-09-10 | Twee adviescommissies kwamen eerder dit jaar juist tot de conclusie dat de Nederlandse overheid de bouw van offshore windparken met gerichte industriepolitiek moet steunen. | 14 | | | | | | | | X | | De Volkskrant |
| 70 | 02-09-10 | Volgens Samsom hebben Nederlandse bedrijven door een onduidelijk overheidsbeleid 'te weinig vertrouwen' in de toekomst van windenergie om een scherpe offerte te kunnen maken. 'Dan kun je geen risico nemen.' | 14 | | | | | | | | X | | NRC Handelsblad |
| 71 | 02-09-10 | Bard tekent contract voor offshore windpark. | 12 | | | X | | | | | | | De Volkskrant |
| 73 | 10-04-12 | Door de groei van de Eemshaven, de hoeveelheid (energie)projecten die op dit moment op de rol staan in het gebied en de ligging van de Eemshaven direct aan het werelderfgoed en Natura-2000-gebied de Waddenzee, is in samenwerking met de gemeente en de provincie een brede milieueffectstudie gestart om vanuit het gebied een integrale beoordeling te kunnen doen en op die wijze een zorgvuldige keuze ten aanzien van de specifieke projecten die in het gebied worden gerealiseerd. Er wordt nagegaan of en hoe tien kabels en buisleidingen door de Waddenzee naar de Eemshaven geleid kunnen worden. | 33 | | | X | | | | | | | Kamerbrief |
| 74 | 19-06-12 | De wijziging van de vergunning op zee in verband met een ander turbinetype zal ook in de rijkscoördinatie procedure worden meegenomen. Afhankelijk van het moment van indienen van een wijzigingsaanvraag door Typhoon kan dit najaar een ontwerp inpassingsplan samen met de ontwerpvergunningen ter inzage worden gelegd. | 38 | | | X | | | | | | | Energieia |
| 75 | 28-03-13 | De financiering is rond. | 75 | | X | | | | | | | | Dagblad van het Noorden |
| 76 | 05-01-13 | Van twee plannen naar een plan. | 28 | | X | | | | | | | | Dagblad van het Noorden |
| 77 | 18-04-12 | Typhoon offshore in zee met siemens en afscheid van bard. | 39 | | | | | | | X | | | De Volkskrant |
| 78 | 20-10-10 | Eneco en Nuon bezwaar tegen tegemoetkoming van BARD. | 16 | | | | | X | | | | | nrc.next |

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| 79 | | Minister Verhagen van Economische Zaken heeft woensdag bepaald dat duurzame energie voorrang krijgt op het net. Dat wil zeggen dat als het stroomnet de hoeveelheid aangeleverde elektriciteit niet aankan, de centrales op fossiele brandstoffen (gas, kolen en uranium) moeten terugschakelen. | 17 | | | | | | | | X | | NRC Handelsblad |
| 80 | | Bard neemt Typhoon Offshore in de arm, regelen van de financiën. | 75 | | X | | | | | | | | Eemskrant |
| 81 | 20-10-10 | Sinds de crisis banken huiverig om grote bedragen te lenen aan groene energie. | 18 | | | | | | | | | X | NRC Handelsblad |
| 82 | 23-11-10 | Ministerie zegt dat windmolenparken terecht aan Bard zijn verleend, Nuon en Eneco kunnen nog in beroep. | 19 | | | | | X | | | | | NRC Handelsblad |
| 83 | 14-01-11 | HVC, een nutsbedrijf in Alkmaar dat in handen is van gemeenten en waterschappen, neemt een belang van 15 procent in het windmolenpark van 600 megawatt dat de Duitse BARD-groep gaat bouwen in de Noordzee, 55 kilometer ten noorden van Schiermonnikoog. | 21 | | | | | | X | | | | Algemeen nederlands persbureau (ANP) |
| 84 | 14-01-11 | Maxime Verhagen heeft mes gezet in de subsidies. | 20 | | | | | | | | X | | ANP |
| 85 | 26-01-11 | Van oord wind de deal voor Gemini. | 22 | | | | | | X | | | | ANP |
| 86 | 30-08-11 | Windpark is volledig in Nederlandse handen gekomen. | 27 | | | | | | X | | | | ANP |
| 87 | 30-08-11 | Bard levert nog wel de turbines van het farm. | 37 | | X | | | | | | | | NRC Handelsblad |
| 88 | 01-09-11 | Milieuorganisaties en adviesbureaus klaagden dat de subsidie naar een Nederlandse partij had moeten gaan, om de nationale windsector te stimuleren. | 13 | | | | X | | | | | | Dagblad van het Noorden |
| 89 | 01-09-11 | Grote energiebedrijven als Eneco en Nuon tekenden bezwaar aan tegen de toekenning door Economische Zaken. Het ministerie zou onvoldoende hebben getoetst of windturbinebouwer Bard kapitaalkrachtig genoeg was om dit grote project te financieren. | 16 | | | | | X | | | | | NRC Handelsblad |
| 90 | 01-09-11 | Minister Verhagen zei vorige week dat het betreurd dat Nederland 3,5 miljard euro uitgeeft aan het neerzetten van die paar dure windmolens in zee. | 74 | | | | | | | | X | | nrc.next |
| 91 | 01-09-11 | Bard levert de turbines en zou ook participeren in het project. Het bedrijf komt echter geregeld in het nieuws met berichten over financiële nood, wat potentiële investeerders zou afschrikken. Dus geen aandeelhouder meer in het bedrijf. | 13 | | | | X | | | | | | Dagblad van het Noorden |
| 92 | 02-09-11 | Als investeerders bezwaar tegen Bard Turbines dan moet dat aangepast kunnen worden. | 37 | | X | | | | | | | | ANP |
| 93 | 03-09-11 | De klacht werd beoordeeld door Agentschap NL, een onderdeel van EZ. Dat stelde Eneco en Nuon in het ongelijk. Kort daarna werd duidelijk dat Bard wel degelijk een zwakke financiële positie heeft. Er | 19 | | | | | X | | | | | De Volkskrant |

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| | | gingen geruchten dat het bedrijf zou worden overgenomen. | | | | | | | | | | | |
| 94 | 14-04-12 | Het vergunningensysteem is veel minder omslachtig dan in Nederland. In een rapport dat de Rabobank dit voorjaar samen met persbureau Bloomberg uitbracht, wordt het overheidsbeleid in Groot-Brittannië voor de offshore wind adequaat genoemd, en in Duitsland zelfs goed. Nederland krijgt een slechte kwalificatie: „De politieke steun is zwak, het risico voor ondernemers is hoog.” | 14 | | | | | | | | X | | De Volkskrant |
| 95 | 17-04-12 | Siemens gaat de windmolens leveren, zij kunnen nieuwe soort windmolen leveren omdat die bij alle windomstandigheden kan produceren (de bestaande alleen vanaf windkracht 4) daarnaast meer molen 150 i.p.v. 120. Hierdoor meer investeerder aantrekken. | 37 | | X | | | | | | | | NRC Handelsblad |
| 96 | 17-04-12 | Intussen lijkt de windenergie op zee Siemens zelf in de problemen te brengen. De Duitse zakenkrant Financial Times Deutschland meldt vanochtend dat het bedrijf grote moeite heeft om de aansluiting van de stroom van zee op het elektriciteitsnet op land, voor elkaar te krijgen. De aanleg van minstens twee transformatorplatforms heeft ernstige vertraging opgelopen. Siemens bouwt die platforms in opdracht van netbeheerder Tennet. Het gaat om het platform Helwin 1 dat het windpark Nordsee-Ost moet verbinden en het platform Borwin 2. | | | | | X | | | | | | NRC Handelsblad |
| 97 | 14-11-11 | Typhoon heeft de twee parken de werktitel 'Project Gemini' gegeven. Van der Heijden is naar eigen zeggen "heel erg druk bezig" met het vinden van partijen die in de twee parken willen participeren. "Het gaat goed, ik ben er dagelijks mee bezig, maar partijen voor zoiets heb je niet 1-2-3 gevonden", aldus Van der Heijden. Hij is in ieder geval "heel blij" met de toekenning van het restbudget aan Eneco, waardoor Typhoon geen juridische procedures tegemoet hoeft te zien. "Dat geeft duidelijkheid, we hebben nu de bevestiging dat die EUR 4,4 mrd echt van ons is." Ook voor potentiële investeerders is dat van belang, bevestigt Van der Heijden. | 29 | X | | | | | | | | | Energieia |
| 98 | 03-01-12 | Typhoon heeft Korwind voor de rechter gehaald, om aandelen alsnog af te dwingen. | | | X | | | | | | | | Energieia |
| 99 | 05-01-12 | Eerst zal worden bekeken welke routes bij voorbaat al zijn uitgesloten voor het aanleggen van kabels en pijpen door natuurwetgeving, scheepvaart of zeebodembewegingen. In het gebied dat overblijft, worden vervolgens globale corridors waar kabels en pijpen door kunnen lopen, vastgesteld. Op basis van de soorten kabels en leidingen die worden gebruikt, de aanlegtechnieken en de mogelijkheid om kabels te bundelen, moeten dan 'kansrijke corridors' worden aangewezen. Het rijk bekijkt het stuk zee noordelijk van de Waddeneilanden hiervoor, plus het oostelijk deel van de Nederlandse Waddenzee. Van die meest kansrijke corridors worden vervolgens de milieueffecten onder de loep genomen. | 38 | | | | X | | | | | | Kamerbrief |

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| 100 | 16-04-12 | Golven, boten, vogels en scheepswrakken. De onderwerpen die deel uitmaken van het onderzoek voor de milieueffectrapportage (Mer) voor het aansluiten van de beoogde Gemini-windparken (600 MW) boven Schiermonnikoog, roepen de sfeer op van een piratenverhaal. Maar voor windontwikkelaar Typhoon Offshore en het faciliterende ministerie van Economische Zaken, Landbouw en Innovatie (EL&I) zijn het de droge feiten waarmee gewerkt moet worden bij het in kaart brengen van de milieugevolgen van het leggen van de kabels die de zee turbines ontsluiten. | 36 | | | | X | | | | | | Energieia |
| 101 | 17-04-12 | Het farm moet door de keuze voor de Siemens-molen opnieuw worden ontworpen. Want Typhoon had oorspronkelijk in gedachten om te kiezen voor een turbinetype met een vermogen van 5 MW. Dit zouden turbines van voormalig projecteigenaar Bard zijn, dat zich terugtrok. "Onze keuze voor de turbine van Siemens betekent dat er in hetzelfde gebied 150 fundaties komen. Daarom is het hele farm opnieuw ontworpen". | 38 | | | X | | | | | | | Energieia |
| 102 | 25-04-12 | "Afgesproken is dat de bouw van het windpark voor 1 augustus 2013 moet starten. Vooralsnog is deze afspraak niet veranderd." | 12 | X | | | | | | | | | Energieia |
| 103 | 25-04-12 | De realiteit is dat wij al tientallen miljoenen in het project hebben gestoken. Van het bodemonderzoek door Fugro en de Mer [Milieueffectrapportage, red.] door Arcadis tot werk door adviseurs en juristen: we hebben alle nodige stappen gezet. Het klopt dat we in overleg uitstel hebben gekregen, maar we zijn niet in gebreke en dat zijn we nooit geweest. | 40 | X | | | | | | | | | Energieia |
| 104 | 16-05-12 | Het ministerie van Economische Zaken, Landbouw en Innovatie (EL&I) heeft Typhoon Offshore tot haast gemaand bij de naleving van de tendervoorwaarden die gelden voor de ontvangen miljardensubsidie voor het windpark Gemini (600 MW). Typhoon Offshore moet voor de ontwikkeling van het windpark met bankgaranties over de brug komen, maar verzuimt dit tot nu toe. "We hebben Typhoon om opheldering gevraagd. Als het bedrijf daar op korte termijn niet mee komt, beraden we ons op vervolgstappen", meldt EL&I-woordvoerder Esther Benschop aan Energieia. | 42 | | | | | X | | | | | Energieia |
| 105 | 06-06-12 | Het Productschap Vis had elf vergunningen voor offshore windparken in de Noordzee aangevraagd, maar de rechtbank in Rotterdam stelde het Productschap vorig jaar in het ongelijk. De vissers lieten het daar niet bij zitten, maar ook in hoger beroep oordeelde de RVS eind mei dat tien van de elf aangevraagde vergunningen terecht zijn verleend. | 56 | | | | | X | | | | | Energieia |
| 106 | 22-06-12 | De advocaat die optreedt namens de Nederlandse staat is door demissionair CDA-minister Maxime Verhagen (Economische Zaken, Landbouw en Innovatie) ingeschakeld om "juridische stappen te zetten" richting Typhoon Offshore, om de investeerder te dwingen om met bankgaranties voor het windproject Gemini (600 MW) over de brug te komen. Dat schrijft Verhagen deze vrijdag in een brief aan de Tweede Kamer, waarin hij openstaande | 42 | | | | | X | | | | | Energieia |

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| | | vragen van het energiedebat van dinsdag beantwoordt. | | | | | | | | | | | |
| 107 | 26-08-12 | De Europese Investeringsbank (EIB) is voornemens om EUR 500 mln aan financiering beschikbaar te stellen aan het windproject op zee Gemini (600 MW) van Typhoon Offshore. Dat blijkt uit een publicatie van de EIB deze woensdag. Typhoon Offshore reageert bij navraag blij en stelt dat dit een belangrijke stap is richting realisatie van de twee parken, elk 300 MW. | 52 | | | | X | | | | | | Energiea |
| 108 | 07-12-12 | Typhoon Offshore is er op hoofdlijnen uit met in totaal vijf kopers, kon Berkhout in een toelichting aan Energiea bevestigen. Volgens woordvoerder Marcel van den Berg is "het aandelenkapitaal geplaatst, behoudens afsluitende formaliteiten". In januari denkt Typhoon er ook formeel uit te zijn met de investeerders en met de echte namen naar buiten te kunnen komen. De financial close verwacht Berkhout dan in de zomer van 2013. | | | | | | X | | | | | Energiea |
| 109 | 07-12-12 | Typhoon Offshore heeft het project opgeknipt in twee stukken: het windpark zelf en het stroomnetwerk (de kabels en het transformatorstation). | 26 | | X | | | | | | | | Opiniedebat |
| 110 | 20-12-12 | De Europese Investeringsbank (EIB) is eruit: Typhoon Offshore krijgt definitief een lening van EUR 500 mln aangeboden voor de realisatie van het windproject Gemini (600 MW). | 45 | | | | | X | | | | | Energiea |
| 111 | 21-01-13 | Geen prettig idee, zo vindt Van Kuik. Volgens hem gaat de overheid met een dergelijke koers "zijn eigen probleem creëren", namelijk dat er tegen offshore windenergie net zoveel weerstand zal ontstaan als tegen onshore windenergie. "Ik ben er niet voor. Mensen zijn conservatief. Onshore is het al een probleem dat mensen geen windturbines willen, en dat gaan we dan offshore ook krijgen. Het beetje krediet dat er voor offshore windenergie is, wordt zo teniet gedaan", aldus Van Kuik tegen Energiea. "Ik ben bang dat iedereen weer op zijn achterste benen gaat staan. Het beetje consensus dat er over offshore windenergie is, wordt zo onderuit gehaald." | 48 | | | | X | | | | | | Energiea |
| 112 | 15-02-13 | Het ministerie van Economische Zaken (EZ) heeft deze vrijdag een pakket ontwerpbesluiten voor de Gemini-windparken van Typhoon Offshore gepubliceerd. De ontwerpbesluiten liggen tot en met 29 maart ter inzage. Behalve het rijksinpassingsplan dat nodig is voor de aansluiting van het windpark op het hoogspanningsnet, gaat het om een aantal ontheffingen en (gewijzigde) vergunningen van verschillende overheden. | 51 | | | X | | | | | | | Energiea |
| 113 | 15-02-13 | De vergunningen uit 2009 gingen uit van windparken van 60 turbines van 5 MW en een kabeltracé tot vlak voor de kust. Deze vergunningen vielen onder de niet meer bestaande Wet beheer rijkswaterstaatswerken (Wbr), en moeten daarom gewijzigd worden naar Waterwetvergunningen, en worden ook licht gewijzigd omdat het kabeltracé iets | 38 | | | X | | | | | | | Energiea |

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|-----|----------|--|----|---|--|---|--|---|--|---|--|-------------|
| | | anders loopt dan in 2009 voorzien was. Ook moest een rijksinpassingsplan gemaakt worden omdat de kabels het Waddengebied doorkruisen, aan land komen en aan het bestaande hoogspanningsnet gekoppeld worden. Het rijksinpassingsplan is nodig om gemeentelijke bestemmingsplannen te wijzigen. Voor het aan land brengen van de kabels waren ook nog aanvullende vergunningen nodig. | | | | | | | | | | |
| 114 | 15-02-13 | Afhankelijk van het aantal zienswijzen dat op de ontwerpbesluiten binnenkomt, en de complexiteit van die zienswijzen, zullen op zijn vroegst in mei definitieve besluiten volgen. Daartegen is dan nog beroep bij de Raad van State mogelijk. Wordt door niemand een beroep ingediend, dan zouden alle vergunningen in juli al onherroepelijk kunnen zijn, aldus EZ-woordvoerder Esther Benschop. Als er wel beroep wordt ingediend, moet de Raad van State binnen zes maanden uitspraak doen. | 62 | X | | | | | | | | Energiea |
| 115 | 05-07-13 | In totaal zijn op de Nederlandse ontwerp-besluiten elf zienswijzen ingediend, door de Biologische Schutzgemeinschaft Hunte Weser-Ems, het Bundesministerium für Verkehr, Bau und Stadtentwicklung, de Land- en Tuinbouw Organisatie Noord, Naturschutzverband Niedersachsen, Nederlandse Gasunie, Noordgastransport B.V., Typhoon Offshore, Visserijvereniging "Ons Belang", de Waddenvereniging, Wasser- und Schifffahrtsdirektion Nordwest, en het Watersportverbond. Alleen deze organisaties kunnen dus bij de Raad van State in beroep gaan tegen de nu ter inzage liggende definitieve besluiten voor het Gemini-project, tenzij een belanghebbende "redelijkerwijs niet kan worden verweten" dat hij geen zienswijze heeft ingediend. Omdat het project onder de Crisis- en herstelwet wat, kunnen andere Nederlandse overheden niet in beroep gaan tegen de besluiten. | 54 | | | X | | | | | | Energiea |
| 117 | 02-08-13 | Bekend making van alle projecteigenaren door Typhoon. | 72 | | | | | X | | | | Energiea |
| 118 | 02-08-13 | Vijf aandeelhouders zijn bekend. | 72 | | | | | X | | | | Energiea |
| 120 | 29-08-13 | vanaf 2015 weer nieuwe offshore windparken worden aanbesteed, er is een Structuurvisie Wind op Zee in de maak, en er zou ook goed een nieuw uitgiftestelsel kunnen komen, waarbij gestreefd wordt naar "een maximale koppeling tussen gebiedsuitgifte en financiële beschikkingen". | 71 | | | | | | | X | | Energiea |
| 121 | 29-08-13 | Stientje van Veldhoven verlengd de vergunningen, zodat ontwikkelaars langer de tijd hebben om farm alsnog te bouwen. | 74 | | | | | | | X | | Opiniedebat |
| 122 | 29-08-13 | En ook na 2015 is het in principe niet de intentie dat ze worden ingetrokken, benadrukt het ministerie van Infrastructuur en Milieu bij de regels. Bij intrekking "zou immers het beleidsstreven om met de huidige vergunningen direct te kunnen overgaan tot realisatie op het moment dat dit financieel-economisch zeker is, teniet worden gedaan". | 14 | | | | | | | X | | Energiea |

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|-----|----------|---|----|--|---|---|---|---|---|--|--|---|-------------------------|
| 123 | 02-02-13 | Het Deense pensioenfonds PKA is bereid gevonden om een achtergestelde lening te verstrekken van EUR 120 mln en ook meerderheidsaandeelhouder Northland Power legt nog eens EUR 80 mln in. "Daarmee hebben we de voorlaatste stap in het traject gezet. Met name het instappen van PKA is bijzonder, omdat pensioenfondsen normaal gesproken pas instappen als projecten al klaar zijn", aldus Typhoon-woordvoerder Marcel van den Berg. | 49 | | X | | | | X | | | | Energieia |
| 124 | 04-12-13 | Visser hebben bewaar ingetrokken. | 56 | | | | | X | | | | | Dagblad van het Noorden |
| 125 | 04-12-13 | Vergunningen onherroepelijk voor Gemini na terugtrekken vissers bezwaar. | 56 | | | | | X | | | | | Energieia |
| 126 | 04-12-13 | Vissers krijgen toezegging tot vissen bij kabetraces van het farm. | 69 | | X | | | | | | | | Energieia |
| 127 | 04-12-13 | De vissersverenigingen vreesden dat er restricties opgelegd zouden worden in het gebied waar de kabels doorheen lopen, niet alleen tijdens de aanleg maar ook tijdens de operationele fase. | 55 | | | | X | | | | | | Energieia |
| 128 | 04-12-13 | In de vergunning staat volgens Typhoon Offshore echter "expliciet dat derden gebruik mogen blijven maken van het gebied". | 69 | | | X | | | | | | | Dagblad van het Noorden |
| 129 | 04-12-13 | Rijkswaterstaat zou bovendien bevestigd hebben dat er geen reden is om in verband met de kabels restricties aan de vissers op te leggen. | 55 | | | | X | | | | | | Energieia |
| 130 | 04-12-13 | Daarop hebben de vissers hun beroepen ingetrokken, zo wordt ook bevestigd door Raad van State-woordvoerder Sabine Heijstek. De zaak had anders eind november ter zitting moeten komen. Overigens is het in het windpark zelf, zoals in alle offshore windparken, wel verboden om te vissen. | 56 | | | | | X | | | | | Energieia |
| 131 | 04-12-13 | Andere beroepen waren er niet, zegt Heijstek, dus met de intrekking van de procedure door de vissers, zijn de vergunningen nu onherroepelijk geworden. | 62 | | X | | | | | | | | Energieia |
| 132 | 04-12-13 | Het is voor Gemini nog wel wachten op de benodigde vergunningen uit Duitsland. Het Duitse Wasser- und Schiffsverkehrsverwaltung des Bundes (WSV) -de water- en scheepvaartautoriteit in Duitsland, een soort Rijkswaterstaat dus- is namelijk het bevoegd gezag voor het Duitse deel van het Eems-Dollard verdragsgebied waar de stroomkabel van de Gemini-parken doorheen loopt. | 62 | | X | | | | | | | | Energieia |
| 133 | 24-01-14 | Momenteel wordt er achter de schermen bij EZ hard gewerkt aan de nieuwe wetgeving voor flexibele vergunningen en het netbeheer op zee, om meest recente technologieën te gaan gebruiken. | 71 | | | | | | | | | X | Energieia |
| 134 | 24-01-14 | Het voornaamste doel van de flexibele vergunningen is windparkontwikkelaars in staat stellen om steeds de meest recente technologie te kunnen gebruiken. Dit was een veel gehoorde wens van de markt: in de offshore windvergunningen die in 2009 werden uitgegeven, stond nog gespecificeerd welk type turbines en welk vermogen was toegestaan. Dat leidde ertoe dat zowel Eneco (voor windpark Luchterduinen) als Typhoon Offshore (voor Gemini) | | | | | | | | | | X | Energieia |

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| | | die vergunningen moest wijzigen om recentere technieken te mogen gebruiken, met als gevolg de nodige vertragingen. | | | | | | | | | | |
| 135 | 24-01-14 | in de offshore windvergunningen die in 2009 werden uitgegeven, stond nog gespecificeerd welk type turbines en welk vermogen was toegestaan. Dat leidde ertoe dat zowel Eneco (voor windpark Luchterduinen) als Typhoon Offshore (voor Gemini) die vergunningen moest wijzigen om recentere technieken te mogen gebruiken, met als gevolg de nodige vertragingen. | 38 | | | X | | | | | | Energieia |
| 136 | 24-01-14 | Aanwijzen van hoogspanningsnetbeheerder Tennet als netbeheerder op de Noordzee. | 71 | | | | | | | X | | Energieia |
| 137 | 24-01-14 | Door Tennet stopcontacten op zee te laten aanleggen, zou de aansluiting van offshore windparken op het net efficiënter, sneller en goedkoper kunnen dan wanneer windparkontwikkelaars zelf verantwoordelijk zijn voor het aan land brengen van de stroom. | 71 | | | | | | | X | | Energieia |
| 138 | 30-01-14 | Typhoon doet resterende aandeel weg, overnamen door Northland Power. | 72 | | | | | | X | | | Energieia |
| 139 | 30-01-14 | 10 Commerciële banken hebben getekend voor senior debt lening. | 73 | | | | | | X | | | Energieia |
| 140 | 28-02-14 | Greenchoice in het rood. | | X | | | | | | | | Dagblad van het Noorden |
| 141 | 03-04-14 | Uitlites bedrijf Delta gaat alle stroom afnemen die door windpark Gemini wordt geproduceerd. Het Zeeuwse bedrijf is nog in gesprek met Greenchoice, dat op zijn beurt weer de helft van de windstroom van Delta zou kunnen gaan afnemen. Dat zei Delta CEO Arnoud Kamerbeek deze donderdag tijdens een persbijeenkomst. | 84 | | | | | | X | | | Dagblad van het Noorden |
| 142 | 03-04-14 | De controverse rond Econcern heeft ervoor gezorgd dat banken terughoudend werden als het ging om Typhoon Offshore en de financiering van Gemini. Daarom zijn ze er uiteindelijk uitgegaan, denk ik", aldus Anderson in een toelichting. | 52 | | | | X | | | | | Dagblad van het Noorden |
| 143 | 24-04-14 | Minister Henk Kamp (Economische Zaken, VVD) verwacht niet dat de negen bestaande vergunningen voor offshore windparken, die zijn uitgeven in 2009, verzilverd zullen worden. Ze passen namelijk niet in de nieuwe systematiek en de techniek is verouderd, zei Kamp deze donderdag tijdens een algemeen overleg windenergie in de Tweede Kamer. | 74 | | | | | | | X | | Energieia |
| 144 | 15-05-14 | Gemini richt ogen op constructiefase nu financial close bereikt is. | 75 | | X | | | | | | | Energieia |
| 145 | 08-07-14 | 'In Nederland is de afgelopen jaren een redelijk slalombeleid gevoerd. Daar bouw je geen trackrecord mee op en dat creëert onzekerheid.' | | | | | | | | X | | Energieia |

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| 146 | 08-07-14 | vindt Ton Sledsens, bij de Nederlandse Wind Energie Associatie (NWEA) verantwoordelijk voor offshore wind. 'In de markt wordt gearzeld of dat geld inderdaad allemaal beschikbaar zal komen. Banken hebben het vooral moeilijk met het risico dat wordt gezien in de continuïteit van het overheidsbeleid. | 77 | | | | X | | | | | | Energieia |
| 147 | 08-07-14 | Bank krijgt meer vertrouwens omdat het slecht om twee bouwende partijen gaat siemens en van Oord. | 52 | | | | X | | | | | | Dagblad van het Noorden |
| 148 | 14-11-11 | Bijna veertig Nederlandse en Belgische kustgemeentes kruipten eind deze maand bij elkaar om een gezamenlijk standpunt in te nemen over offshore windparken. "Zijn we er gelukkig mee of niet, en zo nee: wat kunnen we dan doen?", vat secretaris Bert Veerman van kustgemeentesbelangenorganisatie Kimo het doel van de bijeenkomst samen. | 31 | | | | X | | | | | | Energieia |
| 149 | 14-11-11 | Toen Amalia werd gebouwd hadden de gemeentes nog geen goed inzicht in wat er eigenlijk gebeurde. Volgens hem zorgt "voortschrijdend inzicht" ervoor dat offshore windenergie opeens toch hoog op de agenda van Kimo Nederland en België is komen te staan. | 31 | | | | X | | | | | | Energieia |
| 150 | 01-06-11 | Opknippen van Bard in stopcontact en windmolen farm. | 26 | | X | | | | | | | | Energieia |
| 151 | 17-05-10 | De Duitse Bard Groep onderzoekt momenteel of het wel in staat is om twee offshore windparken boven Schiermonnikoog te bouwen. Het bedrijf had er volgens projectmanager Guido Kumbartzky helemaal niet op gerekend dat maar liefst twee van de drie ingediende Bard-plannen een subsidie toegekend zouden krijgen. Dat weerhoudt het bedrijf er niet van om mee te dingen naar het restbudget van de offshore tender en mogelijk nog een derde farm te bouwen. | 12 | X | | | | | | | | | Energieia |
| 152 | 12-05-10 | Ze moeten binnen acht weken een uitvoeringsovereenkomst ondertekenen waarmee ze zich verplichten om hun windpark daadwerkelijk te bouwen, en daar voor augustus 2013 mee te beginnen. Doen ze dat niet, dan moeten ze een boete van EUR 20 mln betalen. | 12 | X | | | | | | | | | Energieia |
| 153 | 07-12-09 | Deze definitieve vergunningen liggen ter inzage van 8 december 2009 tot en met 19 januari 2010. Tot en met 19 januari 2010 kunnen belanghebbenden nog in beroep gaan tegen de vergunningen bij de rechtbank. De vergunninghouders kunnen met deze vergunningen, ongeacht eventuele beroepszaken, meedoen aan de subsidietender van het ministerie van Economische Zaken. | 11 | | | | X | | | | | | Energieia |
| 155 | 15-08-08 | De Milieueffectrapportage-aanvraag (Mer-aanvraag) voor een offshore windpark moet in zestigvoud worden ingediend, of in de woorden van de brigade: "vrachtwagens vol papier". | | | | | | | | | | X | Dagblad van het Noorden |
| 156 | 15-08-08 | Alleen al het aantal belanghebbenden. Naast de commissie Mer spelen zeven ministeries een rol: Verkeer en Waterstaat, EZ en Vrom natuurlijk, LNV, Defensie, Buitenlandse Zaken en Financiën staan | | | | | | | | | | | Kamerbrief |

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| | | genoemd; en dan komen nog instanties als de kustwacht, havenbedrijven, enzovoorts. | | | | | | | | | | | |
| 157 | 15-08-08 | Zo bouwt de overheid gestaag aan het beeld van een onbetrouwbare partner -een veelgehoord en terecht verwijt. | 14 | | | | | | | | X | | Energieia |
| 158 | 08-03-14 | De briefschrijvers ondersteunen de energietransitie en het Ambitiemanifest dat door de Waddeneilanden in 2007 is opgesteld en zijn voor off-shore windturbineparken, zoals het Gemini farm dat in uitvoering word genomen boven Ameland en Schiermonnikoog. Op Ameland zijn diverse vooruitstrevende energietransitie projecten in voorbereiding. VVV Ameland en de gezamenlijke dorpsbelangen vragen de Minister van Economische zaken nadrukkelijk om af te zien van aanwijzing van een near-shore windturbinepark vlak boven Ameland. | 59 | | | | X | | | | | | Dagblad van het Noorden |
| 159 | 23-05-14 | Eemshave aanleg van helikopterplatform. | 79 | | X | | | | | | | | Dagblad van Noorden |
| 160 | 23-05-14 | Er moet evenwel een complexe vergunningprocedure voor worden doorlopen, mede doordat het geldende omgevingsplan van de provincie de aanleg van een nieuwe luchthaven verbiedt. | 80 | | | | X | | | | | | Dagblad van Noorden |
| 161 | 23-05-14 | Inmiddels is de aanzet gegeven voor een Milieu Effect Rapportage (MER). Gedeputeerde Moorlag gaf eerder deze maand aan dat intensief overleg met omwonenden en milieuorganisaties noodzakelijk is. De helikoptervluchten kunnen van invloed zijn op de natuur en het milieu in de Waddenzee. | 80 | | | | X | | | | | | Dagblad van Noorden |
| 162 | 23-05-14 | De helikoptervluchten kunnen van invloed zijn op de natuur en het milieu in de Waddenzee. Bovendien kunnen de vluchten overlast geven in de regio, die al door de aardschokken wordt geplaagd. De Natuur- en Milieufederatie heeft zich al kritisch uitgelaten over de helihaven Tijdens een bijeenkomst over het windpark gisteren in Eelde. | 80 | | | | X | | | | | | Dagblad van Noorden |
| 163 | 23-05-14 | „De aanleg van zo'n helihaven en een gebouwtje erbij duurt misschien drie maanden. De procedure is misschien lastiger, maar ik ben ervan overtuigd dat de helihaven in 2016 operationeel is", aldus Peters. | 78 | X | | | | | | | | | Dagblad van Noorden |
| 164 | 13-10-10 | Groningen Het bedrijfsleven heeft grote belangstelling voor de bedrijvigheid die de windmolens op zee kan opleveren. Zo'n 60 tot 80 ondernemingen hebben belangstelling getoond voor samenwerking met Bard bij de aanleg en het beheer van de 120 windmolens boven Schiermonnikoog. De noordelijke bedrijven onder hen hebben zich op initiatief van Energy Valley en de NOM verenigd onder de naam Northern Netherlands Offshore Wind. Dat samenwerkingsverband steunt ook het streven naar het grote windmolenpark van 1000 molens dat Energy Valley bepleit. | 15 | | | | | X | | | | | Dagblad van Noorden |

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| 165 | 29-01-15 | Tennet zoekt locatie in Groningen-stad voor offshore onderhoudscentrum omdat Eemshaven nog niet beschikbaar is. | | | X | | | | | | | | Energieia |
| 166 | 14-11-11 | Of Typhoon als aandeelhouder bij Project Gemini betrokken blijft na de bouw, is dan ook zeer de vraag. Als het ons gegeven is, zullen we er met een klein percentage in blijven." Momenteel is Typhoon voor 85% eigenaar van het project en HVC voor 15%. | 30 | X | | | | | | | | | Energieia |

Table 19 Incidents of Gemini. Incident with the link to the Events, their Code and the Source.

V. Annex - Project Nordsee Ost in Germany

A. Incident list for Nordsee Ost

For Nordsee Ost the same data bases has been used as for Gemini to collect the data. This resulted in the following list. Table 20 provides a short incident description and the source and/ or site.

| ID | Date | Incident | Source | Site |
|----|----------|---|---|---|
| 1 | 09-06-04 | Publication Genehmigungstext. | | http://www.bsh.de/de/Meeresnutzung/Wirtschaft/Windparks/index.jsp |
| 2 | 19-12-14 | First trial of one wind turbine, cable sea laid. | Essen, 19/12/2014, RWE Innogy GmbH | http://www.rwe.com/web/cms/en/1011420/2674394/offshore-wind-farm-nordsee-ost/media-centre/press/news-articles/20141219/ |
| 3 | 13-10-14 | Half of the turbines have been installed. | Bremerhaven, 13/10/2014 | http://www.rwe.com/web/cms/en/1011420/2612178/offshore-wind-farm-nordsee-ost/media-centre/press/news-articles/20141013/ |
| 4 | 13-10-14 | Rotor stars transhipped from Bremerhaven. | Bremerhaven, 13/10/2014 | http://www.rwe.com/web/cms/en/1011420/2612152/offshore-wind-farm-nordsee-ost/media-centre/press/news-articles/20141013/ |
| 5 | 05-09-14 | New service and operating station for the Nordsee Ost. | Heligoland, 05/09/2014, RWE Innogy GMBH | http://www.rwe.com/web/cms/en/1011420/2573280/offshore-wind-farm-nordsee-ost/media-centre/press/news-articles/20140905/ |
| 6 | 05-09-14 | How well service and offshore wind power and tourism go together. | Heligoland, 05/09/2014, RWE Innogy GMBH | http://www.rwe.com/web/cms/en/1011420/2573280/offshore-wind-farm-nordsee-ost/media-centre/press/news-articles/20140905/ |
| 7 | 21-07-14 | Substation placed on foundation. | 07/21/2014, RWE Innogy GHBH | http://www.rwe.com/web/cms/en/1011420/2528156/offshore-wind-farm-nordsee-ost/media-centre/press/news-articles/20140721/ |
| 8 | 21-07-14 | Substation placed on foundation. | 07/21/2014, RWE Innogy GHBH | http://www.rwe.com/web/cms/en/1011420/2528156/offshore-wind-farm-nordsee-ost/media-centre/press/news-articles/20140721/ |
| 9 | 13-06-14 | Cabling offshore wind farm. | 06/13/2014, RWE Innogy GMBH | http://www.rwe.com/web/cms/en/1011420/2481074/offshore-wind-farm-nordsee-ost/media-centre/press/news-articles/20140613/ |
| 10 | 06-06-14 | Operating base on Heligoland for 20 years, new jobs for 50 service employees, inspection foundations. | | http://www.rwe.com/web/cms/en/1011420/2470656/offshore-wind-farm-nordsee-ost/media-centre/press/news-articles/20140606/ |
| 11 | 20-05-14 | 05/20/2014, RWE INNOGY GMBH RWE Innogy commences with turbine installation for the Nordsee Ost Offshore Wind Farm. | | |
| 12 | 03-04-14 | Fabricom offshore service awarded the contract, maintenance work on Heligoland in summer 2014. | | http://www.rwe.com/web/cms/en/1011420/2374270/offshore-wind-farm-nordsee-ost/media-centre/press/news-articles/20140403/ |
| 13 | 14-03-14 | Foundation Nordsee Ost completed. | | http://www.rwe.com/web/cms/en/1011420/2358668/offshore-wind-farm-nordsee-ost/media-centre/press/news-articles/20140314/ |

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| | | | | centre/press/news-articles/20140221/ |
| 14 | 08-10-13 | Heligoland is the first island in the German North and Baltic Sea to benefit from the development of offshore wind power. This new branch of industry means new jobs, more purchasing power and more varied life on the island", emphasised Jörg Singer, mayor of the Heligoland municipality. | | http://www.rwe.com/web/cms/en/1011420/2097682/offshore-wind-farm-nordsee-ost/media-centre/press/news-articles/20131008/ |
| 15 | 06-08-13 | RWE Innogy awards contract for inter-array cabling at Nordsee Ost offshore wind farm. | | http://www.rwe.com/web/cms/en/1011420/1998530/offshore-wind-farm-nordsee-ost/media-centre/press/news-articles/20130702/ |
| 16 | 23-05-13 | "A good relationship between our employees and the island community is important to us. After all, we want to operate our wind farm successfully from Heligoland for decades to come. By taking part in the marathon, we have taken another step in making sure we get on well together." | | http://www.rwe.com/web/cms/en/1924840/offshore-wind-farm-nordsee-ost/media-centre/blog-artikel/?p=98 |
| 17 | 24-05-13 | This is where the servicing station is planned to be completed this year, from where the wind farm's 48 turbines are intended to be operated in due course. "Wind turbines out at sea cannot be maintained and serviced at any time of day or night, unlike those on dry land," Peggy Kleidon explains. "This is why we need a safe operating base as close as possible to our wind farm – because short distances save time and money." | | http://www.rwe.com/web/cms/en/1924840/offshore-wind-farm-nordsee-ost/media-centre/blog-artikel/?p=99 |
| 18 | 15-08-12 | "When Heligoland was resettled 60 years ago, this ushered in a new era for Germany's island on the high seas. The new beautiful and colourful homes for the offshore employees of RWE Innogy and REpower now again provide new and promising prospects for the future of the offshore companies and the inhabitants of Heligoland", pointed out Jörg Singer, Mayor of the Heligoland community. | | http://www.offshorewind.biz/2012/08/15/nordsee-ost-offshore-wind-farm-service-staff-get-two-buildings-in-heligoland-germany/ |
| 19 | 15-08-12 | "We intend to operate our Nordsee Ost wind farm from Heligoland in the next 20 years. To this end, we have to create the necessary infrastructure now. The erection of the apartment blocks is an important step in turning Heligoland into the offshore hub for the operation and maintenance of wind farms in the North Sea. Some 30 people will live and work for us on Heligoland in the future. This is also going to benefit the local economy on the island", explained Prof. Martin Skiba, Head of Offshore Wind Power at RWE Innogy. | | http://www.offshorewind.biz/2012/08/15/nordsee-ost-offshore-wind-farm-service-staff-get-two-buildings-in-heligoland-germany/ |
| 20 | 15-08-12 | Overall, RWE Innogy is investing some € 10 million in the creation and development of Heligoland's infrastructure. At present, activities are ongoing in the southern port to prepare for the construction. This is where the service station proper is to be built. The construction of roads and the upgrading of the southern port can start before the end of 2012. The construction of the operations and service station is due to start early in 2013 and is expected to be complete at the end of 2013. | | http://www.offshorewind.biz/2012/08/15/nordsee-ost-offshore-wind-farm-service-staff-get-two-buildings-in-heligoland-germany/ |
| 21 | / | „Wir nutzen Offshore als Rückenwind!“ We maken gebruik van offshore-ie als een steun in de rug voor de revitalisering van het eiland leven. | | http://www.sh-mittelstand.de/#!/referenz_helgoland_joerg_singer |
| 22 | 01-02-10 | He welcomes the decision of the Nordsee Ost as a milestone, and a way to meet Schleswig-Holstein electricity demand. | NSO_002 | http://www.schleswig-holstein.de/Wirtschaft/DE/Standortmarketing/Wirtschaftsland/wirtschaftslandarchiv/PDFs/ThemenPDFs/Ausgabe28_2010/imBlick_WindMeer__blob=publicationFile.pdf |
| 23 | / | Offshore wind energy is a very interesting future market with great market potential for Schleswig-Holstein. This applies in particular locations on the North Sea. | NSO_001 | http://www.schleswig-holstein.de/MJKE/DE/EuropaOstseepolitik/Meerespolitik/Download/potenzialanalyseFortschreibung__blob=publicationFile.pdf |
| 24 | 15-07-13 | The Nordsee Ost should already go online this year though the project was delayed again and again. If you believe Bnting the fault lies primarily with the network operator Tennet, who was unable to provide a large converter station on time. | Zeitonline, 15 juli 2013 | http://www.zeit.de/wirtschaft/unternehmen/2013-07/rwe-offshore-energiewende |
| 25 | 15-07-13 | Tennet refers back to the general contractor Siemens and speak of challenges in the construction which were not predictable. | Zeitonline, 15 juli 2014 | http://www.zeit.de/wirtschaft/unternehmen/2013-07/rwe-offshore-energiewende |

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| 26 | 05-09-14 | Creation of many new jobs for the Island, next to the tourist, 20% more jobs. This brings many new opportunities. | NDR.de | http://www.ndr.de/nachrichten/schleswig-holstein/Meerwind-und-Co-Helgoland-setzt-auf-Offshore,offshore580.html |
| 27 | 03-12-12 | Helgoland continues to take shape. For operation an maintenance and operation of the plants persons and material is continues needed. Schrammgroup, core competitions, Frank Botter former mayor of Helgoland is representing the Schrammgroup on the island for all questions about the project. | Press Box, SCHRAMM group baut Monteursunterk unfte fur Windparkbetreiber RWE Innogy auf Helgoland | http://www.pressebox.de/inaktiv/schramm-group-gmbh-co-kg/SCHRAMM-group-baut-Monteursunterkuenfte-fuer-Windparkbetreiber-RWE-Innogy-auf-Helgoland/boxid/491049 |
| 28 | 03-09-12 | Trend statements to the success of the energy transition, the Federal Environment Agency explained why, "can hardly be made at this time." The federal government itself will be presenting its first monitoring report "Energy of the Future" in December of this year. | Die WELT.de, Die Risiken eines deutsschen Mammutproject s | http://www.welt.de/wirtschaft/energie/article13911271/Risiken-eines-deutschen-Mammutprojekts.html |
| 29 | 03-09-12 | For the relevant network operator TenneT from the Netherlands says, no longer able to shoulder the cost of cable connection. The power supply of the RWE Nordsee Ost wind farm approximately delayed by one year - which leads to extra costs alone here in the three-digit million euro range and threatens the economic viability of the project. A special working group at the Federal Ministry of Economic Affairs is working to speed up the network connection on the high seas. If it fails, estimated that additional investments fail. The technically and logistically highly complex offshore wind farms apply critics as a relatively expensive type of green power generation. | Die WELT.de, Die Risiken eines deutsschen Mammutproject s | http://www.welt.de/wirtschaft/energie/article13911271/Risiken-eines-deutschen-Mammutprojekts.html |
| 30 | 03-06-12 | Thus, the same port again made a contribution in the context of offshore wind power development, because the new substation in Wolfenbüttel, whose foundation stone was laid in September 2011 took place and its construction is now progressing rapidly, is needed to offshore wind farms "Sea Wind" and "Nordsee Ost" that 30 or 35 km north of Helgoland are to bind to the mainland grid. "The new envelope of 358-ton transformers on the same port shows how diverse the future market of offshore wind energy is and how many different challenges associated with it," explains Frank Schnabel, director of Brunsbüttel Ports GmbH. | Port of Hamburg, 6/3/12 | http://www.hafen-hamburg.de/en/node/26764 |
| 31 | 20-02-12 | Both corporations and Tennet demand that the policy secure framework. Without legal certainty and robust arrangements in the event of a delayed network connection "we will take no further construction choices," says Bunting. | Die Tageszeitung, Netze fur die energiewende: Fehlende Kabel | http://www.taz.de/Netze-fuer-die-Energiewende/!88107/ |
| 32 | 20-02-12 | In view of these problems, the more praised Fast pace in Schleswig-Holstein. The most important point both for him and for Zieschang is that the victims - those who live within the new routes - are integrated in time. These were held several regional conferences in the past few months. Because, as the Dithmarsch District Jörn Klimant "latent Stuttgart is everywhere" - hence "citizen participation is the key" is to not to allow protests against the routes the bud. The residents will be mitbeteiligt financially according to the model of "community wind farms" in which to invest a village community in the local rotors and can make a profit share of the routes to be sold. About 700 kilometres networks to be built in the country, the investment costs are half a billion euros. The expected yield is not as great as in wind farms, admitted Faster. "But it is a safe business from an investor's point of view." The idea of citizen networks were presented in the Kiel parliament last year's Open, according to the deputy Detlef Matthiessen was pleased with the "tailwind". | Die Tageszeitung, Netze fur die energiewende: Fehlende Kabel | http://www.taz.de/Netze-fuer-die-Energiewende/!88107/ |
| 33 | 16-02-12 | Gid operator Tennet will initially stop all further expansion plans, reason is the lack of clarity on the timing of the energy | Die welt Moreover, Energiewende:B | http://www.welt.de/wirtschaft/energie/article13872429/Baustopp |

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| | | revolution. Tennet will not announce new work for the time being and only pursue on existing projects. | austopp- Netz für Offshore-Windparks fehlt | -Netz-fuer-Offshore-Windparks-fehlt.html |
| 34 | 16-02-12 | Chairman "Branchennetzwerks Erneuerbare Energie Hamburg" Michael westhagemann sees the announcement of Tennet as alarming " The energy transition is absolutely a serious risk". | Die welt Moreover, Energiewende: Baustopp- Netz für Offshore-Windparks fehlt | http://www.welt.de/wirtschaft/energie/article13872429/Baustopp-Netz-fuer-Offshore-Windparks-fehlt.html |
| 35 | 16-02-12 | RWE wants to extended the work on Nordsee Ost, because the lack of network connections cause trouble and delay on the development of the offshore wind farms Hans Hunting. | Finanzen100, Fehlende Netzanschlüsse verzögern Offshore-Bau | http://www.finanzen100.de/finanznachrichten/wirtschaft/fehlende-netzanschluesse-verzoegern-offshore-bau_H2059058783_1885/?ID_ARTICLE=4-1-1885 |
| 36 | 13-02-12 | Kvaerner's yard in Verdal is one of the few yards in Europe specialising in EPC jacket deliveries, with altogether five oil and gas jackets currently in execution for ConocoPhillips in Norway, BP in UK and the recently awarded Luno jacket for Lundin Norway AS, in addition to 49 jackets for the offshore wind farm project Nordsee Ost for RWE Innogy in Germany. | Direktbroker.de, Correction:KvaernerASA: Kvaerner wins Hild jacket EPSC contract | http://www.direktbroker.de/news/correction-kv-22796362 |
| 37 | 02-08-12 | RWE thinks the goal of 2020 will not be achieved. RWE Nordsee Ost first offshore wind project, though due to the network delay with a year RWE has a shortage of 300.000.000 euro. They will take action against the Dutch grid operator Tennet. | Sharewise, RWE zweifelt an der Zielsetzung für Offshore-Windanlagen | http://www.de.sharewise.com/finanznachrichten/46683-RWE_RWE_AG_ST_ |
| 38 | 02-08-12 | This is also a wakeup call (after the announcement of Bunting for the federal government. To reach there energy goal they need these big investors like RWE. When a solution for this network connection isn't found very soon this marked will not develop. Cause is the problem of lack in money. | Sharewise, RWE zweifelt an der Zielsetzung für Offshore-Windanlagen | http://www.de.sharewise.com/finanznachrichten/46683-RWE_RWE_AG_ST_ |
| 39 | 02-08-12 | Delays in power supply. RWE Innogy can implement your own project "Nordsee Ost" 35 kilometres north of Helgoland only a year late because of delayed network connection. The grid operator TenneT had announced in November that it would be a delay in the development of two platforms due to technical problems of the general contractor. There were intense discussions between Tennet, the general contractor and the wind farm operators, whether the delays can be made up, added a spokeswoman. RWE Innogy wants to get a refund on the other hand the damage caused by the delay in the hundreds of millions. Originally RWE Innogy wanted to take the wind farm with 48 turbines and a total capacity of 295 megawatts 2013. This would allow 310,000 households with electricity. Now the company wants to start until the end of 2012 with the construction. Two construction vessels from South Korea are already underway in Bremerhaven and Helgoland, preparations are underway for the construction phase in full swing. | Verivox, RWE-Manager:Offshore-Ziele sind ehrgeizig, aber unrealistisch | http://www.verivox.de/nachrichten/rwe-manager-offshore-ziele-sind-ehrgeizig-aber-unrealistisch-83776.aspx |
| 40 | 02-08-12 | So far, all plans seemed to be well on track, but a few weeks ago came the "Band letter from your network operator," said Bunting. The German subsidiary of the Dutch power company RWE announced Tennet with the fact that it can connect to the mainland power grid wind farm "Nordsee Ost" no earlier than one year later than agreed in the contract. "For us, this means that we need to push our planning backwards," says Bunting. | Nordwest Zeitung, Probleme mit Winpark vor Sylt | http://www.nwzonline.de/wirtschaft/weser-ems/probleme-mit-windpark-vor-sylt_a_1,0,528463478.html |
| 41 | 02-07-12 | Helgoland itself invested in the hope of jobs, increasing purchasing power and rising business taxes about 25 million euros in the expansion of fallow Südhafens. 30,000 square feet of docks, wharves and land to be passed later this year to investors. As the world's first service island for offshore wind turbines would get the red rocks in the North Sea international model character. | Die Tageszeitung, Startschuss für offshore-windpark: Windige Sache in der Nordsee | http://www.taz.de/Startschuss-fuer-Offshore-Windpark/!87235/ |
| 42 | 04-12-11 | Will do the production monitoring. | FinanzNachrichten.de TÜV Rheinland erhält Prüfauftrag von RWE Innogy für | http://www.finanzennachrichten.de/nachrichten-2011-04/19916798-tuev-rheinland-erhaelt-pruefauftrag-von-rwe-innogy-fuer-windpark-nordsee-ost-millionenauftrag-zur- |

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| | | | Windpark Nordsee Ost / Millionenauftrag zur europaweiten Fertigungsüberwachung durch TÜV Rheinland / 48 Offshore-Windenergieanlagen | europaweiten-fertigungsüberwachung-durch-tuev-rhe-007.htm |
| 43 | 01-02-12 | Energy revolution largely a private matter, farms in the North of Helgoland. | Der Westen Nachrichten: Die Energiewende ist Privatsache | http://www.derwesten.de/nachrichten/die-energiewende-ist-privatsache-id6210052.html |
| 44 | ? | RWE takes over the project from Essent in 2009. | offshore forum windenergie | http://www.ofw-online.de/projekte/nordsee-ost.html |
| 45 | June 2004 | Projects get a BSH approval. | offshore forum windenergie | http://www.ofw-online.de/projekte/nordsee-ost.html |
| 46 | 01-01-02 | Essent takes over Winkra. | offshore forum windenergie | http://www.ofw-online.de/projekte/nordsee-ost.html |
| 47 | 01-11-11 | RWE Innogy has successfully completed the installation of a measurement mast in the German North Sea today. | RWE Innogy errichtet Wind-Messtation der Nordsee, Essen | http://www.rwe.com/web/cms/de/86182/rwe-innogy/presse-news/pressemitteilung/?pmid=4007038 |
| 48 | 01-10-09 | In October 2009, Essent itself was acquired by the German electric utilities company RWE. Nordsee-Ost was consequently transferred to RWE's renewable energy subsidiary, RWE Innogy. | Nordsee Ost Offshore Wind Farm, Helgoland, Germany | ABB is supplying around 40 miles of offshore sea cables. This supply contract is valued at \$12.5m. |
| 49 | 01-01-07 | In 2007, the project was given the necessary approvals required for the installation of offshore cables. | Nordsee Ost Offshore Wind Farm, Helgoland, Germany | ABB is supplying around 40 miles of offshore sea cables. This supply contract is valued at \$12.5m. |
| 50 | 01-02-10 | REpower Systems was given a contract in February 2010 to supply 48 offshore wind turbines of the 6M make, for the Nordsee-Ost project. | Nordsee Ost Offshore Wind Farm, Helgoland, Germany | ABB is supplying around 40 miles of offshore sea cables. This supply contract is valued at \$12.5m. |
| 51 | 01-05-10 | In May 2010, RWE Innogy signed a two-year lease contract with Eurogate Container Terminal Bremerhaven for the use of Bremerhaven container port as a base port for the development activities of the wind farm. | Nordsee Ost Offshore Wind Farm, Helgoland, Germany | ABB is supplying around 40 miles of offshore sea cables. This supply contract is valued at \$12.5m. |
| 52 | / | Aker Solutions was given an engineering, procurement and construction (EPC) contract worth approximately \$144.6m for the delivery of 48 steel jackets and piles for the wind farm. | Nordsee Ost Offshore Wind Farm, Helgoland, Germany | ABB is supplying around 40 miles of offshore sea cables. This supply contract is valued at \$12.5m. |
| 53 | / | ABB is supplying around 40 miles of offshore sea cables. This supply contract is valued at \$12.5m. | Nordsee Ost Offshore Wind Farm, Helgoland, Germany | ABB is supplying around 40 miles of offshore sea cables. This supply contract is valued at \$12.5m. |
| 54 | 09-02-15 | Press release, Helwin 1 transmission line realised. | Press Release, 2000 megawatts (MW) of offshore transmission capacity realised in the German North Sea | http://www.tennet.eu/de/fileadmin/downloads/news/Junge/150209_PM_HelWin1_in_operation_en.pdf |

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| 55 | / | Helwin 1, TenneT will do this project. | | http://www.tennet.eu/de/netz-und-projekte/offshore-projekte/helwin1.html |
| 56 | 03-07-12 | BSH approved HelWin alpha transformer platform and submarine cable HelWin 1. | BSH genehmigt Konverterplattform HelWin alpha und Seekabelsystem HelWin 1 | http://windpark-helgoland.de/windpark/2012/07/bsh-genehmigt-konverterplattform-helwin-alpha-und-seekabelsystem-helwin1/ |
| 57 | 24-10-13 | 14 of the 80 plants are installed though the cable is lacking. The islanders slowly see that the wind energy can become a source of income. Hoteliers of the island are benefiting from the wind power. They rent their rooms. Also the mayor is convinced that the investment will be worth it. Grit Hofmann und Carmen Meyer see wind as the new course for Helgoland | DW WINDKRAFT – NEUER KURS FÜR HELGOLAND Windkraft – Neuer Kurs für Helgoland Teil 4 | http://www.dw.de/windkraft-neuer-kurs-für-helgoland-br-teil-4/a-17174672 |
| 58 | 24-10-13 | Heligoland becomes the offshore base for the companies E.ON, RWE and WindMW. Instead of tourists in the hotels it is now filled with workers. | WINDKRAFT – NEUER KURS FÜR HELGOLAND Windkraft - Neuer Kurs für Helgoland Teil 1 | http://www.dw.de/windkraft-neuer-kurs-für-helgoland-br-teil-1/a-17129689 |
| 59 | 24-10-13 | Hoteliers and fishermen fear the new reputation of their holiday island, the noise and industrial image could fear tourist. So even the wind energy becomes the new economic motor of the island it controversy with the main goal of the island. | WINDKRAFT – NEUER KURS FÜR HELGOLAND Windkraft - Neuer Kurs für Helgoland Teil 1 | http://www.dw.de/windkraft-neuer-kurs-für-helgoland-br-teil-1/a-17129689 |
| 60 | 27-06-11 | The Residents of Helgoland vote against the plan to reconnect the two island Heligoland and Dune. This bridge would connect the two island and would make it possible to let the population grow from 1300 to 1500 people. | GERMANY German archipelago residents vote against land bridge | http://www.dw.de/german-archipelago-residents-vote-against-land-bridge/a-15191214 |
| 61 | 06-07-08 | Hamburg business man wants to double the size of the Helgoland, by connecting the two islands and selling the ground between it. Because now there is a fading tourism. | GERMANY German Plans to Double Size of North Sea Island Helgoland | http://www.dw.de/german-plans-to-double-size-of-north-sea-island-helgoland/a-3463985 |
| 62 | 21-11-08 | Financial crisis makes experts worry for cut in renewable energy funds, though the industrial professionals say that no matter what this industry will go on. | GERMANY Experts Wary of Money Problems for Renewable Energy Market | http://www.dw.de/experts-wary-of-money-problems-for-renewable-energy-market/a-3809234 |
| 63 | 09-10-13 | Offshore wind brings new jobs and income for the island in North Sea, on peak days 2500 tourist on the island. It less future change to "offshore service island". To get new jobs and new income. Hotels for technical staff, laundry service, tourist tours to the wind farms. | | |
| 64 | 16-02-12 | RWE and TenneT agreed to halt future windfarm projects because government failed to provide " reliable framework conditions for wind power developers. No new tenders only old ones. Problems with the legislation and regulation no new projects until issues have been sorted out. | RENEWABLES RWE stops windfarm projects amid energy policy dispute | http://www.dw.de/rwe-stops-windfarm-projects-amid-energy-policy-dispute/a-15745965 |
| 65 | 16-02-12 | Nobody going to invest in wind power is the grid connection remains unstable government admitted that there are problems, power grid needed to be completely reconstructed in order to transport electricity. However the government said that was often inhibited by public resistance, people were opposed to overhead transmission lines in their neighbourhoods. | RENEWABLES RWE stops windfarm projects amid energy policy dispute | http://www.dw.de/rwe-stops-windfarm-projects-amid-energy-policy-dispute/a-15745965 |

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| 66 | 14-07-08 | Investors can acquire permits only after rigorous environmental monitoring for more than a year, to ensure no disrupt fragile marine ecosystems animal life and Watt region. Large distance to the coast is meant to protect tourists on islands of Ruegen and Helgoland. | BUSINESS Germany Charts New Waters With Offshore Wind Energy Plans | http://www.dw.de/germany-charts-new-waters-with-offshore-wind-energy-plans/a-3478173 |
| 67 | 14-07-08 | "We have to remember that the new technology has only been tested on land so far," said Tiedemann. There may be a few surprises in store at sea," he said. | BUSINESS Germany Charts New Waters With Offshore Wind Energy Plans | http://www.dw.de/germany-charts-new-waters-with-offshore-wind-energy-plans/a-3478173 |
| 68 | 04-03-13 | 430 km power lines in the Baltic Sea. 1720 km in the North Sea. 22 billion euros costs over the next ten years. To see it in front of the plans of the German network operator for the expansion of the German sea power grid, it is to bring the wind from the sea to the mainland. On weekends, the network operator launched the formal consultation process for billions plan. | Lieber weniger Meer | http://www.sueddeutsche.de/wirtschaft/ausbau-alternativer-energien-lieber-weniger-meer-1.1614765 |
| 69 | 01-04-05 | Messmast, 36km sudwestlich der insel Amrum, april 2005. | Nordsee Ost Ein offshore Projekt in der Umsetzung, Forwind Vortragsreihe | |
| 70 | 01-12-06 | Test trubine in cuxhaven (50% joint venture with E.ON. | Essent.com | |
| 71 | 22-12-14 | First green power from the Nordsee Ost project. | Windmesse.de | http://w3.windmesse.de/windenergie/news/17207-nordsee-ost-erste-offshore-anlage-liefert-grunen-strom |
| 72 | 05-01-14 | All installation are installed, In just seven months, we were able to complete successfully Christmas turbine installation. All our attention is now commissioning. | Windmesse.de | w3.windmesse.de/windenergie/news/17239-offshore-windpark-nordsee-ost-alle-anlagen-errichtet |
| 73 | 26-11-14 | Technique background construction. | Windmesse.de | http://w3.windmesse.de/windenergie/news/16971-vorstellung-des-offshore-projekts-nordsee-ost-von-rwe-innogy |
| 74 | ? | EU sponsors. | | https://setis.ec.europa.eu/setis-magazine/wind-energy/eepr-project-focus—nordsee-ost |
| 75 | 01-01-00 | 2000: plans for the construction of a wind farm are originally developed by Winkra Offshore Nordsee Planungs und Betriebsgesellschaft. | RWE Innogy errichtet Wind-Messtation der Nordsee, Essen | |
| 76 | 01-01-02 | 2002: the project is acquired by Dutch energy company Essent. | RWE Innogy errichtet Wind-Messtation der Nordsee, Essen | |
| 77 | 01-01-04 | 2004: Germany's Federal Office for Shipping and Hydrography approves the project. | RWE Innogy errichtet Wind-Messtation der Nordsee, Essen | |
| 78 | 01-01-05 | 2005: a metering mast is installed at Amrumbank; the data received is used as a basis for the development of the Nordsee-Ost wind power station. | RWE Innogy errichtet Wind-Messtation der Nordsee, Essen | |
| 79 | 01-01-07 | 2007: the project receives the necessary approvals for the installation of offshore cables. | RWE Innogy errichtet Wind-Messtation der Nordsee, Essen | |
| 80 | 01-01-08 | 2008: RWE sets up renewable energy subsidiary RWE Innogy. | RWE Innogy errichtet Wind-Messtation der Nordsee, Essen | |
| 81 | 01-01-09 | 2009: RWE acquires Essent and Nordsee-Ost is transferred to RWE Innogy. | RWE Innogy errichtet Wind-Messtation der Nordsee, Essen | |
| 82 | 01-01-11 | 2011: RWE Innogy successfully completes the installation of a measuring tower at Nordsee Ost. | RWE Innogy errichtet Wind- | |

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| | | | Messtation der Nordsee, Essen | |
| 83 | 01-01-12 | 2012: RWE Innogy commissions the Victoria Mathias offshore installation vessel to build the Nordsee Ost wind farm. | RWE Innogy errichtet Wind-Messtation der Nordsee, Essen | |
| 84 | 12-02-08 | The wind and soil expertise have confirmed good conditions for the realization of the wind farm. | RWE Innogy errichtet Wind-Messtation der Nordsee, Essen | |
| 85 | 12-02-08 | Stable wind conditions proven by metering mast in operation since April 2005. | RWE Innogy errichtet Wind-Messtation der Nordsee, Essen | |
| 86 | 12-02-08 | 50% JV with E.ON, put into effect Q4/2006 Bild: REpower 5M in Betrieb bei Brunsbüttel Technics • Commissioning and start of operations in January 2007. | RWE Innogy errichtet Wind-Messtation der Nordsee, Essen | |
| 87 | 24-01-14 | Offshore wind energy pressures on marine life, they say report do not take into account the cumulative effects of the may wind farms being built in the North Sea. They say a lot of effort is taken to reduce the potential ecological impacts. The conservationists do not want development in offshore though do want greater consideration. | RENEWABLES Booming German offshore wind power industry puts pressure on marine life | http://www.dw.de/booming-german-offshore-wind-power-industry-puts-pressure-on-marine-life/a-17339633 |
| 88 | 30-01-13 | Concern further development of offshore wind, in 2012 only 15 were connected and 350 units were still waiting, new regulation might cut the subsidies for wind projects. | RENEWABLES Storm brewing for wind industry | http://www.dw.de/storm-brewing-for-wind-industry/a-16562780 |
| 89 | 03-04-13 | It's a decision that has sparked a lot of controversy, as the path towards clean energy is lined with obstacles. Consumers complain about prices going through the roof, industry demands more financial support for the development of new technologies, while policymakers just seem rather lost. Everyone wants the turnaround, but no one seems to be able to agree on exactly how to achieve it. The latest quarrel in this affair is about offshore wind farms. | RENEWABLES Do German offshore wind farms have a future? | http://www.dw.de/do-german-offshore-wind-farms-have-a-future/a-16717347 |
| 90 | 03-04-13 | Wind power is to be part of the German "energy mix," there's no doubt about it. But it's not the wind far out at sea that will contribute to German electricity. "The energy turnaround will happen onshore, not offshore - that much is certain," says Matthias Hochstätter. It's this source of energy that will provide the main part of the future energy mix. According to Hochstätter, southern Germany in particular still has a lot of potential for onshore wind farms. | RENEWABLES Do German offshore wind farms have a future? | http://www.dw.de/do-german-offshore-wind-farms-have-a-future/a-16717347 |
| 91 | 03-04-13 | Germany should put their wind farms further away because of the tidal difference, which would make no sense from an economic point of view. | RENEWABLES Do German offshore wind farms have a future? | http://www.dw.de/do-german-offshore-wind-farms-have-a-future/a-16717347 |
| 92 | 03-04-13 | Offshore wind still needed though in the development phase and needs investment. | RENEWABLES Do German offshore wind farms have a future? | http://www.dw.de/do-german-offshore-wind-farms-have-a-future/a-16717347 |
| 93 | 15-06-11 | After Fukushima nuclear disaster, switch of nuclear power plants, 17 nuclear plants in Germany. RWE chief executive Jürgen Grossmann has been extremely critical of the nuclear phase-out. His company's share price dropped dramatically at the end of May after the government announcement. | NUCLEAR POWER All eyes on energy companies, as nuclear moratorium ends | http://www.dw.de/all-eyes-on-energy-companies-as-nuclear-moratorium-ends/a-15155095 |
| 94 | 02-11-09 | Germany nuclear power plants offline by 2020, but new coalition government is discussing extending their lifetimes. Opinion divided over what impact this will have on the renewable energy sector. Currently 17 nuclear plants, 8 old once offline in the coming 5 years. | BUSINESS Will the new coalition nuke the renewable energy industry? | http://www.dw.de/will-the-new-coalition-nuke-the-renewable-energy-industry/a-4849223 |

| | | | | |
|----|----------|--|----------------------------------|---|
| 95 | 22-12-14 | Protest offshore wind (not specially to Norsee Ost). | Ostsee-zeitung | http://www.ostsee-zeitung.de/Region-Rostock/Bad-Doberan/Politik/Protest-gegen-Offshore-Windparks-erreicht-neue-Dimension |
| 96 | 22-11-14 | Protest against wind farms, uncontrolled running wind power development of the government. | Norddeutsche Neueste nachrichten | http://www.nnn.de/lokales/rostock/protest-gegen-windkraftanlagen-id8257941.html |
| 97 | 15-11-11 | Tennet tempo ligt te hoog bij aansluiten van Duitse offshore windparken. | Energiea | |

Table 20 Incident list Nordsee Ost

B. Background information on project Nordsee Ost

a. Offshore Policy and EIA procedure in Germany

The policy in Germany is designed in such a way that it strengthens the confidence of the investor by feed-in tariffs, mandated grid and cost sharing (M. Portman, 2009). The federal authorities are mainly responsible for the planning, construction, and grid connection of the offshore wind farms. The authorities of the federal states decide on projects in coastal waters on the basis of the Federal Immission Control Act (BImSchG). They also decide on the cables of the EEZ, which run through coastal waters. The approval for projects in Germany is an action of the German Federal Maritime Agency (BSH). The law prescribes conditions for rejection. The BSH only needs to determine if these conditions exist, if not, the developer has the right to develop the project (Snyder & Kaiser, 2009). The regional waterway and shipping administrators will determine whether or not a project poses a threat to navigation. In the EEZ of the North and Baltic Sea there are different legal rights. In order to avoid possible conflicts, a regional development plan was set up in 2009. The EEZ North Sea-ROV and the EEZ Baltic Sea-ROV. The agreements in the plan apply for different uses and for Wind energy generation.

When the conditions are met, the project is approved for a term of 25 years, provided that construction begins within 2,5 years. A fixed price is guaranteed under the feed-in tariff, which declines slowly over time (Snyder & Kaiser, 2009). A bonus can be obtained for faster completion of a project and investors will receive a free grid connection (Mani & Dhingra, 2013).

Offshore grid policy

Until now, the construction of the offshore grid connection depended on the fulfilment of certain realization criteria of a wind farm. This results in considerable delays, since the transmission system operators have only been able to make their investment decision at a very late point in time. Now the grid construction is executed differently. According to O-NEP, (Offshore-netzentwicklungsplan, O-NEP) a newly introduced instrument. The grid connections are no longer based on the extent to which the offshore wind farms have been completed, but on the specifications in the offshore grid development plan. This plan determines measures on the grid adoption over the coming 10 - 20 years. Respectively to secure the expansion of the grid connections.

On the basis of the Offshore Grid Development Plan, operators of offshore wind farms can apply to the Federal Network Agency to have connection capacity assigned. When two developers submit an application for the same area, the one who completes the application first receives the permission (BSH, 2008). This only applies to the connections that have already been commissioned by the responsible transmission grid operator. To participate in the procedure, the operator has to fulfil certain conditions during the progress of the project. They must have completed a main subsurface investigation as well as having submitted supply agreements for the components for the construction of the offshore wind farm.

The EIA procedure in Germany exist of five phases. The project initiator submits an application to the BSH, which checks on the completeness and displays the application. In phase two the initiator introduces the project at an application conference and identifies conflicting potentials. The BSH will determine the scope of the EIA. In phase three the imitator prepares the report and will submit the documentation in phase four. The BSH will forward the documents to the interested parties and review the plan. After that in phase five the grant is approved. Below a point wise description.

Phase 1 : Project application and participation of public interest parties

- Initiator submits an application to the BSH.
- Application/proposal will be checked on completeness.
- Application documents are publically displayed, allowing public interest parties the opportunity to express their opinion.

Phase 2 : Application conference

- Initiator introduces the project at an application conference.
- The initiator identifies conflicting potentials concerning goods and other public or private issues that might arise during the process.
- The BSH determines the scope of the context of the EIA.

Phase 3 : Preparation of the report and further documents

- Initiator prepares the report
 - Environmental impact assessment (in German: UVS) with expert opinion.
 - A FFH compatibility study.
 - Risk analysis (risk of collision between ship and offshore wind plants).
 - Assessment whether or not further reports are required.
 - Technical documents (foundation soil, oceanographic and environmental condition and technical design).

Phase 4 : Consideration and approval

- When all documents are submitted to the BSH it is forwarded to the public interest groups and associations and made publicly available.
 - Parties can express their opinions
- Discussion meetings will take place in this phase.
 - Effects will be discussed with all parties
- BSH will review all documents and opinions when the prerequisite for the approval or plan is given.

Phase 5: Fulfilment of permit conditions

- The grant is approved and the permit is limited to 25 years.
- Operators must comply to further conditions.
- Operators are under obligation to provide construction site protocols.

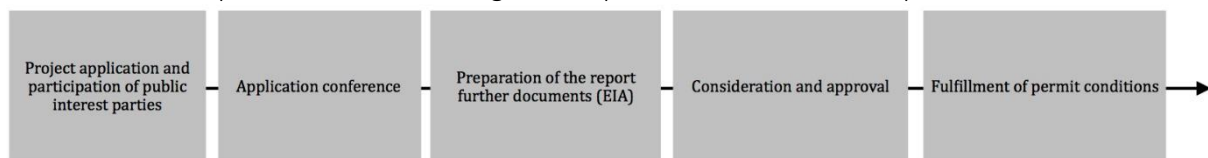


Figure 49 Procedural steps for EIA in Germany

b. The Procedural steps in Nordsee Ost

Nordsee Ost, final construction in 2015, owned by RWE Innogy GmBH, is a wind farm located in the EEZ of Germany in the North Sea. The farm is located far from shore yet situated 30 km north of the island Heligoland. The farm consists of 48 turbines, generating 6 MW and based on jacket foundations (Kirsch et al. n.d.). Although ARCADIS did not develop the EIA, it had a role in the claim management, subcontractor management and supervision.

One project was related to Norther and influenced parts of the project. That is why it is taken into account as well, namely:

- Helwin 1, offshore cable from Nordsee Ost to mainland, constructed by TenneT.

The EIA study for Nordsee Ost was not available for review online. In fact, no offshore wind farms EIA's are at this moment available online. Interviews with German expert made it clear that within German regulations it is not obligatory to publish EIA's online. Currently, however more EIA are made available online. Though this is mostly initiated by the project owners and not by the authorities. This will change in 2017 due to new regulations stipulating EIAs are to be made available online for the public. The European directive requires this.

In 2004 Essent (formal developer and owner of the project) received the approval for the location from the BSH. A presentation by Essent shows that the drafting of the EIA document would have three phases. The literature study shows that once permits were provided, construction should begin within 2.5 years. This however was not the case. The interview revealed that this requirement was interpreted rather freely. With just one drilling one could technically say that the project has started. This requirement is flexible and is mainly set up for the Germany government so that they are legally authorised to stop a project after some time of inactivity.

In the interview it became clear that, contrary to the Dutch case where there is Commissie Mer, in Germany there is no official commission to review the EIA. The decisions on the project and the decision of the contents of the EIA lay with the local and regional authorities. Also the EIA in Germany does not have a standard commitment. Therefore, variation can be seen between EIA contents and procedures.

c. Public Debate on Nordsee Ost

For the service and maintenance of the Nordsee Ost wind farm, RWE developed a service and operating station in the southern port of the Heligoland (RWE Innogy 2009). The overall public opinion among the inhabitants of Heligoland cited in the news articles was positive. RWE made many investments on the island such as housing, infrastructure, service centres, etcetera. These developments resulted in more jobs on the island. Before this development people on the island were dependent on tourism. Now the island has a possibility to generate income from the jobs created by the offshore wind industry.

Nevertheless, interviews reveal that some discussion on the impact of offshore wind projects is still taking place. Even though the discussion on the overall renewable market in Germany is decreasing. The long transmission lines along Germany, which are needed to transfer the energy and also handle the overcapacity do cause controversy and are the subjects of much discussion.

d. Contextual change over the years and its role the process

In Germany the public involvement in projects is growing. Involvement is stimulated by project owners themselves and not by Germany policy or regulation. As mentioned before, it is not obligatory to publish the EIA's online. Publication online will take place in 2017 making it less difficult for German parties to access the studies. Now they must go to the local authorities for this. The interviewee's clarified that a transition may be seen in Germany despite being stimulated by the project owners. Project owners are taking more incentive to include the public opinion in their projects. One of the reasons for this transition is the failure of a few large projects in Germany due to public resistance.

In spite these incentives, the EIA procedure will not change. However, now more stages in the projects for public involvement are introduced. This increases the public involvement in projects. Despite this,

public participation takes place at very late phase. The investor has already invested greatly and after viewing the alternatives chooses one. The public has no longer a say on the alternatives as a result. Since recent, however, more project owners see the importance of public participation in the projects and therefore involve the public on a larger scale as well as in an earlier phase of the process.

VI. Annex - Project Norther in Belgium

A. Incident list for Norther

For Norther the same data bases has been used as for Gemini to collect the data. This resulted in the following list. Table 21 provides a short incident description and the source and/ or site.

| ID | Date | Incident (Nieuw) | Source | Site |
|----|----------|--|------------------------------|---|
| 1 | 02-02-15 | Elia bouwwerken van het hoogspanningsnet (Stevin project) opgestart, realisatie van het project komt daardoor in stroom versnelling. | Eneco.nl | http://nieuws.eneco.nl/norther-wordt-grootste-offshore-windpark-van-belgie |
| 2 | 03-02-15 | Eneco investeert samen met Elia in offshore windpark Norther, ontwikkeltraject duurt 5 jaar, Alle vergunningen bouw verleend. | Windnu.nl | http://www.windnu.nl/offshore/eneco-investeert-belgisch-offshore-windpark-norther |
| 3 | 17-08-11 | De overheid heeft de concessie uit 2009 in februari van dit jaar verkleind omdat het toekomstig windmolenpark de scheepvaart uit de havens van Oostende en Zeebrugge zou kunnen hinderen. | Energieia | |
| 4 | 07-02-12 | Norther heeft bouw en milieuvergunning beet. | Energieia | |
| 5 | 03-03-14 | "Sommige parken, waaronder Norther, hebben berekend dat een individuele connectie met het vasteland goedkoper is. Maar een 'stopcontact op zee' is broodnodig als ik alle plannen die ik opvang op een rijtje zet: vier nieuwe windparken, een energieatol voor de Belgische kust, de experimenten met getijdencentrales, de interconnectie met Groot-Brittannië en het eventueel aansluiten van Nederlandse parken op het Bog-netwerk. In die setting is een Belgian Offshore Grid een logische stap", zegt Vandermeiren. | Energieia | |
| 6 | 24-05-12 | Nederland dient klacht in tegen het project. | Energieia | |
| 7 | 03-03-14 | Elia luidt alarmklok over Stevin. | Energieia | |
| 8 | 12-11-13 | Elia vraagt eerste vergunningen aan voor offshore stopcontact. | Energieia | |
| 9 | 19-07-13 | Aanpassing Belgisch subsidiemechanisme voor offshore windparken. | Energieia | |
| 10 | 09-01-15 | De toekomst van de windmolencapaciteit op het Belgisch deel van de Noordzee is absoluut duidelijk, zo reageert Bart Tommelein op het bericht van de ODE. | De Krant van West-Vlaanderen | |
| 11 | 10-01-15 | De windenergie op de Noordzee is voor vele Belgen een nobele onbekende. In tegenstelling tot wat velen denken, zijn er op vandaag al 182 windmolens operationeel op de Noordzee. | De Krant van West-Vlaanderen | |
| 12 | 11-01-15 | De Noordzee levert op die manier maar liefst 10% van de totale elektriciteitsbehoefte van België. | De Krant van West-Vlaanderen | |
| 13 | 17/9/14 | Na de steden Brugge en Damme ook Maldegem zijn verzet neergelegd van hoogspanningsleiding (Stevin) nu alleen nog actiecomité Zeebrugge in de weg. | | |
| 14 | 26/9/14 | Blij dat Stevin goedgekeurd is en niet het meer in de weg staat. | Standaard | http://www.standaard.be/cnt/dmf20140926_01288927 |
| 15 | 02-02-15 | Eneco voor helpt eigenaar Norther. | GroeneCourant | http://groenecourant.nl/windenergie/eneco-wordt-voor-de-helpt-eigenaar-van-grootste-offshore-windpark-belgie/ |
| 16 | 11-12-13 | Eerste vergunning voor Belgian offshore grid zijn aangevraagd voor de tweede ondergrondse kabel. | Engineeringnet.be | |
| 17 | 31/10/13 | 2012 basis in de elektriciteit wet. | Engineeringnet.be | http://www.engineeringnet.be/belgie/detail_belgie.asp?id=11265 |
| 18 | 31/10/13 | BOG- offshore netwerk (gebouwd in 2016/-2017) Eerste Elia bouw van twee hoogspanningsstations- Norther op aangesloten. | Engineeringnet.be | http://www.engineeringnet.be/belgie/detail_belgie.asp?id=11265 |
| 19 | 31/10/13 | BoG pas gebouwd als Stevin project, kabel en station af is. | Engineeringnet.be | http://www.engineeringnet.be/belgie/detail_belgie.asp?id=11265 |
| 20 | 23/5/12 | Nederland tekens beroep bij raad van state tegen Norther. | Zita.be | http://www.zita.be/nieuws/binnenland/1807438_nederland-vecht-vierde-belgische-offshore-windmolenpark-aan.html |
| 21 | 20/5/11 | Veranderingen in de aandeelhoudersstructuur, zo in 2014 op zijn vroegs kunnen beginnen. | 7 sur 7 | http://www.7sur7.be/7s7/fr/2765/Environnement/article/detail/1267101/2011/05/20/4e-farm-eolien-offshore-en-mer-du-Nord.dhtml |

| | | | | |
|----|----------|---|-------------------|---|
| 22 | 25/5/12 | | Energie keuze | |
| 23 | 02-02-15 | Nu Elia ook met Stevin project is begonnen nu ook werk voor 4de windmolenpark. | trends.be | |
| 24 | 30/9/14 | Alle juridische obstakels tegen Elia Stevin project opgeruimd. | Engineeringnet.be | http://www.engineeringnet.be/belgie/detail_belgie.asp?id=13159&titel=Alle%20juridische%20obstakels%20tegen%20Elia%E2%80%99s%20Stevin-project%20opgeruimd&category=nieuws |
| 25 | 09-02-14 | Stadbestuur Brugge geeft dan toch groen licht voor Stevin project. | Engineeringnet.be | |
| 26 | 02-06-14 | Klachten tegen het tracé bij de raad van state voor Stevin project. | Engineeringnet.be | http://www.engineeringnet.be/belgie/detail_belgie.asp?id=11800 |
| 27 | 09-11-13 | Beslissing dat burgers de mogelijkheid hebben om milieu protest aan te tekenen tegen grote projecten. | Engineeringnet.be | http://www.engineeringnet.be/belgie/detail_belgie.asp?id=10955 |
| 28 | 12-11-13 | | Elia | http://www.elia.be/~media/files/Elia/PressReleases/2013/NL/20131112_BOG-vergunningen_NL.pdf |

Table 21 Incident list Norther

B. Background information on the project Norther

a. Offshore Policy and EIA procedure in Belgium

The Belgian government allocated a zone for offshore wind energy development. In that zone eight sites have been pointed out. The BMM (Beheerseenheid van het Mathematisch Model van de Noordzee) is a department of the Royal Belgium Institution. They model, monitor and manage the different developments in their section of the North Sea. (BMM, n.d.) Once all eight farms have been realized Belgium will generate a total wind capacity of 2200MW. Which would fulfil 10% of the Belgium energy requirement (BOP, 2014).

Norther is the fourth offshore wind farm developed in Belgium by NV Norther (consisting of Air Energy and Eneco). With a distance of 24 km from shore, Norther is located nearest to the Belgium mainland. ARCADIS carried out the EIA study for Norther.

The legal framework for offshore wind in Belgium was lately changed on September 17th, 2001. The Belgium EIA procedure also consist of numerous steps (ARCADIS, 2011). The initiator needs to notify the BMM of their plan. Then the ministry will response within 30 days and receives the requirement of the EIA. When the EIA is finished it is submitted to the BMM, who will invest the completeness of the assessment. After the application is available for the public and they have a window of 90 days for objections and appeals. After that the BMM will send the EIA (form the initiator), their own EIA study and their advice to the minister. Then the minister will make the final decision if the plan can be executed or not. Below a point wise description.

Before the application

- The initiator needs to notify the BMM of the plan (T = Moment of notification).
- The ministry makes a decision, within 30 days (T+ 30 days).
- The initiator will ask the BMM for the requirements of the EIA.

Submitting the application

- The initiator submits the EIA to the BMM (T +?).
- The BMM will investigates the EIA on completeness (T+?), after this start T1.

EIA by the BMM, investigation and advise

- Start of the procedure of the application (T1).
- BMM makes the application publicly available in the Gazette (T1 + 30 days).

- Application (EIA) will be available at the BMM and coastal municipalities (T1 + 15/ 45 days).
- Closure of the period of objections and appeals (T1 + 60 days) and other member states (T1 + 90 days).
 - o When the project has consequences over the neighboring borders Belgium will consult the neighboring Member state.
- The BMM sends the application, their own EIA (the one developed by the BMM containing the information about the EIA made by the initiator) and their advice to the minister (T1 + 120 days).

Decision

- The minister makes a decision (T1 + 150 days).
- The initiator can give motivated notifications to the minister (T1 + 165 days).
- Minister reaches a final decision (T1 + 165).

Figure gives an overview of the steps.

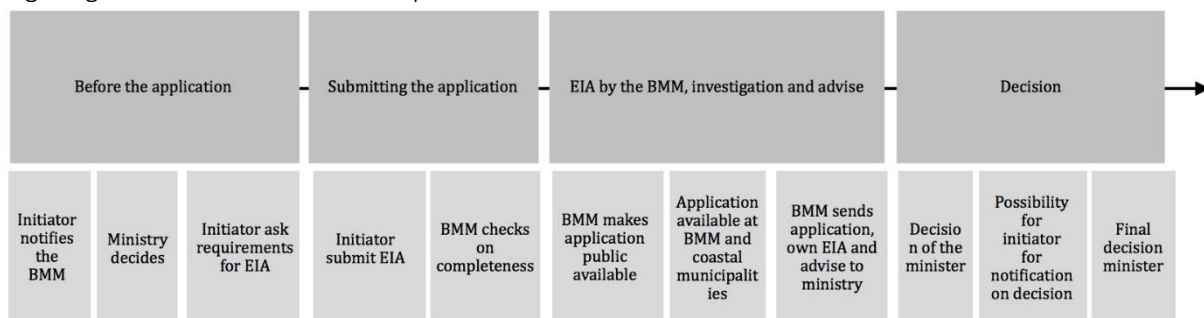


Figure 50 Procedural steps for the EIA in Belgium

b. The Procedural steps in North

Two projects were related to North and influenced parts of the project. That is why they are taken into account here as well. These two projects were:

- Belgium Offshore Grid (BOG), connecting North and a few other offshore wind farms to the onshore main grid.
- Stevin, a high voltage cable on the main land for the distribution of electricity to the remaining part of Belgium.

The application for North was submitted on 11th of May 2011 by NV North and included the EIA study accomplished by ARCADIS. The EIA included three broad configurations, capturing a wide range of technical possibilities (ARCADIS 2011b)(ARCADIS 2011a). The configurations varied from 47 to 86 turbines, 120 m to 150 m rotor diameter and 3 to 10 MW which made the generated power per turbine for every configuration as followed:

- Configuration 1: power per turbine between 3 to 4,5 MW
- Configuration 2: power per turbine between 5 to 6,5 MW
- Configuration 3: power per turbine between 7 to 10 MW.

The motivation for the approach of three configurations is to ensure a wide range of possibilities, as the technology of turbines and construction is developing fast (ARCADIS 2012). The power per turbine for example varies from 3 to 10 MW. This makes it more likely that when technology or possibilities change, it still will be covered in one of the three configurations. This reduces the risk of performing a new EIA study when technologies and possibilities change over the time. Based on the EIA study NV North acquired the application on the 12th of January 2012. Nevertheless, NV North needed to add another configuration to the EIA study. The project developer noted that the use of 3 MW wind

turbines was preferred in the market, so they changed to another turbine type. For the permit of the location, Norther was obliged to generate at least 300 MW. This meant a minimum of 100 turbines, which was not covered in the previous configurations. This configuration needed to be added to the EIA study, which took place on 5 July 2012 (ARCADIS 2012).

As mentioned above, the Belgium system knows two EIA studies. The EIA study of the BMM is based on the EIA study performed by ARCADIS. The missing information in the performed EIA, according to BMM, is added in the EIA of BMM. The EIA studies for Norther is online available on the BMM site, (Belgium Federal Government). The study contains also additional safety studies;

- documentation on requested modifications,
- the opinion of the MUMM (Management Unit of the North Sea Mathematical Models),
- a letter of opinion and the EIA study constructed by BMM.

The interviews confirmed that BMM is an organisation that stimulates offshore development. Consequently, the relationship between BMM and the performer of the EIA study is less formal than in some other countries like Holland. When the BMM finds that elements are missing in the EIA study of the organisation (here arcadis), they will add those elements in their study. An advantage of this is that the EIA study does not have to be rewritten. However a disadvantage can be that there is a conflict of interest, because BMM is making their own alterations in the EIA study. Thereby BMM takes on the role of research and control centre, while its main purpose should be making political decisions. The BMM does not have a very strict policy and procedure regarding the EIA content, and allows parties to set up a broader scope information in the EIA studies. Therefore, the EIA studies performed by initiators do not require many future adjustments and can be concluded faster.

c. Public Debate on Norther

The Norther project was minimally discussed in the media. When the project was mentioned, it was mainly in combination with the other projects, BOP and Stevin. Especially the Stevin project of the onshore high voltage cable, received much negative attention. Stevin needed to be realised before Norther. Norther was dependent on the onshore transport cable. Due to the realisation problems of Stevin, Norther needed to be postponed.

From the interviews with Belgium experts, it became clear that Norther caused less controversy. The reason behind this was that the general public was already acquainted with the idea. The locations for the offshore wind developments were already determined in the year 2000. During that time three farms had already been constructed. Therefore, the public was less focused on Norther, even though it is located nearest to shore.

The procedural steps for EIA studies at sea or on land differ slightly. For projects at sea there is no project initiation documentation phase before the development of the EIA. After the EIA study is publicised there is public consultation. This consultation is led by the BMM, they regulate the consultation and the matters that need to be taken into consideration for project changes. For projects on land this is slightly different, a public consultation is effected before the development of an EIA.

During the public consultation for Norther, the main point of contestation was put forward by the Dutch State. They were displeased with the construction proposals of Norther. On the 3th of April they formally objected to the plan together with the Port of Rotterdam (Zita.be). The reason for this objection was the fact that the turbines would be too close to navigation routes. Before a legal decision had been taken, NV Norther decided to change the construction plan. They reduced the total

surface area so that the turbines would not be located close to navigation routes. The interview clarified that this decision by NV Norther was made out of fear. NV Norther was afraid that if they did not reduce the surface area, they might lose the permit. This resulted in changing the arrangement of the farm and led to the 4th configuration in the EIA study. After the 4th configuration was added, another public consultation took place. This time no formal objection to Norther was made.

d. Contextual change over the years and its role on the process

In Belgium the monitoring of projects has increased noticeably, especially for the offshore wind projects. This could be associated to the fact that in the beginning there was more public resistance to offshore wind farms, resulting in the cancellation of one offshore project (around the year 2000). This is the reason given by the experts for performing multiple studies during the years to determine the public opinion on offshore wind projects. Also BMM is making an effort to communicate more positive facts and news on offshore wind projects to the public. Overall, this has improved public opinion on offshore wind in Belgium.

The BMM directs the public consultation on offshore wind projects and displays a sense of responsibility for the success of the projects. Therefore, they include many parties and make an effort to improve the public opinion on offshore wind energy. This aspect was the focus of their agenda. From that point on a transition to more public awareness is noted.