Understanding the entrepreneurial process to adopt renewable energies in Sweden

A case study on an offshore wind park project in the Baltic Sea

Erik Falkenhain

Degree project/Independent project • 30 credits
Swedish University of Agricultural Sciences, SLU
Faculty of Natural Resources and Agricultural Sciences/Department of Economics
Environmental Economics and Management
Degree project / SLU, Department of Economics, 1504 • 1401-4084
Uppsala 2023

Understanding the entrepreneurial process of adopting renewable energies in Sweden

A case study on an offshore wind park project in the Baltic Sea

Erik Falkenhain

Supervisor:	**Dr. Per-Anders Langendahl, Swedish University of Agricultural Sciences, Department of Economics**
Assistant supervisor:	Assistant supervisor's name, university, department (if any or delete the row)
Examiner:	Richard Ferguson, Swedish University of Agricultural Sciences, Department of Economics

Credits:	30 credits
Level:	A2E
Course title:	Master Thesis in Business Administration
Course code:	EX0904
Programme/education:	Environmental Economics and Management
Course coordinating dept:	Department of Economics
Place of publication:	Uppsala
Year of publication:	2022
Copyright:	All featured images are used with permission from the copyright owner.
Title of series:	Degree project/SLU, Department of Economics
Part number:	1504
ISSN:	1401-4084

Keywords: offshore wind parks, entrepreneurial processes, governance, agency, power relations

Swedish University of Agricultural Sciences
Faculty of Natural Resources and Agricultural Sciences
Department of Economics

Abstract

The alarming magnitude of the global climate crisis is on the rise. Thus, a profound and rapid energy system transition towards renewable energies is needed. Offshore wind (OSW) parks are a promising energy source to boost green energy production. While OSW has been adopted in many European countries (e.g. Denmark and Germany), the uptake in Sweden is slow. Adopting large infrastructure projects (e.g. OSW) involve a plurality of actors who influence the adoption process. Studies that examine OSW adoption in Sweden emphasise the policy context for adoption (e.g. negotiating of a permit).

Fewer studies consider the situation for entrepreneurs seeking to adopt OSW. Therefore, the paper focuses on the entrepreneurial planning process of adopting OSW in Sweden. Since the entrepreneur is one of many actors influencing the adoption of OSW, a governance perspective is applied to investigate the interplay of actors. The paper follows a case-study research design investigating a planned OSW park project in the Baltic Sea region close to the Archipelago of Stockholm. Primary data was collected through qualitative interviews with social actors involved in the case project. In addition, secondary data from documents, videos and webinars were collected to gain further insights. An in-depth frame analysis was conducted to analyse the interplay of multiple actors and their exercise of agency and power to influence the adoption of the case project. The group of identified actors was allocated to the following five actor constituencies: market, state, community, and the third sector. The actors used different modes of agency to influence the entrepreneurial process (support, collaboration, and communication).

In conclusion, the study showed that the permit system is the prevailing regime that governs the adoption of OSW parks in Sweden. The entrepreneurial process to adopt OSW is complex. Thus, context (e.g. involved actors) is key to understanding the complexity of adopting renewable energies. Predefined models often do not address this context, making them difficult to apply to the adoption of large infrastructure projects (e.g. OSW park). Therefore, applying a governance perspective on the case project was helpful in creating context to understand the real-world conditions of adopting OSW parks in Sweden.

Keywords: offshore wind parks , entrepreneurial processes, governance, agency, power relations

Table of contents

List of tables **7**

List of figures **8**

Abbreviations **9**

1. Introduction **10**
1.1 Problem Background 10
1.2 Offshore Wind as a Renewable Energy Driver 11
1.3 Problem Statement 12
1.3.1 Empirical Problem 12
1.3.2 Theoretical Problem 13
1.4 Research Aim and Question 14
1.5 Delimitations 14
1.6 Outline 15

2. Literature Review and Theoretical Approach **16**
2.1 The Linear View on the Innovation Process 16
2.1.1 Understanding the Complex Nature of Innovation 17
2.2 The Renewable Energy Transtion 18
2.2.1 The Multidimensional View on the Innovation Process 19
2.3 The Complexity of Large-Capital Projects 20
2.3.1 The Project Governance of Large Capital Projects 21
2.3.2 The Large Capital (LC) School 21
2.4 Theoretical Approach 23
2.4.1 Adopting a Governance Perspective on OSW Projects 23
2.4.2 The Exercise of Agency and Power in OSW Projects 24

3. Method **27**
3.1 Case Study Research Design 27
3.1.1 Trustworthiness of Qualitative Research 28
3.1.2 Purposive Sampling 29
3.1.3 Primary Qualitative Data 30
3.1.4 Secondary Qualitative Data 32
3.2 Analytical Approach 33
3.2.1 Frame Analysis 33
3.2.2 Data Analysis 35
3.3 Discussion of Methodological Choices 36

4. Empirical case study and Analysis **38**
4.1 Empirical Context - The Baltic Offshore Delta 38
4.1.1 Project Background 38
4.1.2 Adopting OSW Parks in Sweden 39
4.2 Data Analysis 41
4.2.1 The Entrepreneurial Process of Adopting an OSW park 41
4.2.2 Analysing OSW from a Multiple Actor Perspective 43
4.2.3 Analysing the Influence of Agency in OSW Projects 44
4.2.4 Analysing Power Relations and Dynamics 47
4.3 Results 50

4.3.1 Conceptualising the Entrepreneurial Process 50
4.3.2 Allocating the Actors to Constituencies 50
4.3.3 Different Modes of Agency 51
4.3.4 Prevailing Power Relations and Dynamics 52

5. Discussion 53
5.1 Multiple Actors Influencing the Entrepreneurial Process of Adopting OSW 53
5.2 How Actors Exercise Power to Influence the Adoption of OSW 55
5.3 Critical Reflection on Research Implications and Limitations 56

6. Conclusion 57
6.1 Recommendations for Future Research 58

References 60

Popular science summary 68

Appendix 1 69

List of tables

Table 1. Typology of power relations and dynamics (inspired by Avelino 2017) 25

Table 2 Criteria of trustworthiness and parallels to validity criteria (inspired by Bell et al. 2019) 29

Table 3. Overview of interviewees 31

Table 4. Topics of analayis and questions for frame analysis (inspired by Westin 2019) 34

Table 5. Summary of identified actors allocated to actor constituencies 51

Table 6. Summary of modes of agency influencing the entrepreneurial process 51

Table 7. Summary of power relation and dynamics influencing the entrepreneurial process 52

List of figures

Figure 1. The linaer model of innovation (own illustration) 16
Figure 2. The Multi-Level-Perspective (Van Rijnsoever & Leendertse 2020)..... 19
Figure 3. Large-capital (LC) school of thoughts (inspired by Bekker 2014)..... 22
Figure 4. The Multiple-Actor-Perspective (inspired by Avelino & Wittmayer 2016) 24
Figure 5. Designing and conducting semi-structured interviews (inspired by DeJonckheere & Vaughn 2019)..... 31
Figure 6. Data analysis approach (own illustration)..... 35
Figure 7. Location of the Baltic Offshore Delta in the Baltic Sea (Ritzén 2021) 39
Figure 8. Full project process to build an OSW park (inspired by Wind Europe III 2019) 39
Figure 9. Preliminary project plan for the Balti Offshore Delta (inspired by Ecogain 2021) 40
Figure 10. The entrpreneurial process to adopt an OSW park in Sweden (own illustration) 50

Abbreviations

OSW	Offshore wind
GHG	Greenhouse gases
IPCC	Intergovernmental Panel on Climate Change
UN	United Nations
TWh	Terawatt hours
MW	Megawatt
GW	Gigawatt
LM	Linear model
MLP	Multi-Level-Perspective
SF	Single firm
MF	Multi firm
LC	Large capital
MAP	Multiple-Actor-Perspective

1. Introduction

The introductory chapter presents the adoption of offshore wind (OSW) as the overarching research topic. In the beginning, the problem background introduces the broader picture explaining the inevitable need for an energy transition towards fossil-free energy sources. OSW, as renewable energy, forms a central pillar in this transition process with the potential to produce green energy. This thesis focuses on adopting OSW in the Scandinavian country of Sweden. The problem statement provides the reader with a perspective of OSW in Sweden and outlines the research gap leading to the research aim and question. The introduction chapter ends with the delimitations of this study and a brief outline.

1.1 Problem Background

Humankind is standing at a crossroads. The alarming magnitude of the global climate crisis existentially threatens our lives on our beloved planet earth. The outlook for the upcoming years is not good. The people on earth are facing an increasing frequency of extreme weather phenomena such as long-lasting droughts, devastating storms, and heavy floods (Ghazali et al. 2018; Lombardi et al. 2020).

In 2015, the Paris Agreement spread a glimpse of hope uniting 196 nations with the common objective of holding the scale of global warming significantly below 2 degrees Celsius compared to pre-industrial times (UNFC 2022). This climate goal can only be achieved by drastically reducing greenhouse gas (GHG) emissions (ibid.).

However, recent statistics unveil that GHG emissions continue to rise with no trend of deduction in sight (IPCC 2022). Therefore, the Intergovernmental Panel on Climate Change (IPCC) urgently warns the international community in its sixth assessment report from 2022 to fight climate change and to mitigate GHG emissions throughout all emitting sectors (ibid.). The UN (2021) emphasises that there is still time to act, but it requires immediate actions and measures such as decarbonising our energy production system.

Global GHG emissions are divided into five sectors: Industry, buildings, transport, agriculture, and energy (Lamb et al. 2021). The UN (2022) states that the energy sector alone contributes 60% to global emissions. This circumstance makes the energy sector the leading polluter in terms of overall GHG emissions. Hence, the UN (2022) addresses the high emissions in the energy sector with Sustainable Development Goal 7, promoting a definite shift towards renewable energies.

So far, the global energy production system relies heavily on fossil fuels, with two-thirds of the total energy output coming from carbon-emitting energy

producers like coal, oil, and gas (Ritchie et al. 2020). The IPCC predicts that it needs an energy transition with solid adoption of renewable energy sources (e.g., solar, wind, biomass, and hydropower) to cut global GHG emissions (Pallardy 2022).

The energy transition towards more renewables has gained further momentum in the past two decades (Ritchie et al. 2020). The adoption of renewable energies is globally on the rise due to significant downfalls in costs which make renewables more economically viable compared to fossil energy sources (IEA 2021; Shen et al. 2020; Lazard 2022; Ritchie et al. 2020). A promising technological approach to decarbonising the energy sector is the construction of large-scale OSW parks on the sea (Dedecca et al. 2016). This technological approach has been implemented by many European countries contributing to the production of renewable energy in Europe (European Environment Agency I 2021).

1.2 Offshore Wind as a Renewable Energy Driver

In 1991, the world's first OSW park launched its operation in Denmark (Danish Ministry of Climate 2020). Since then, energy production through OSW got adopted by many other European nations, growing up to be a decisive driver of the renewable energy transition in Europe (Esteban et al. 2011).

The European outlook regarding OSW looks promising and has the potential to significantly contribute to the EU's renewable energy target of at least 32% of renewables by 2030 (European Commission 2022; European Environment Agency I 2021). Industry experts expect that new large-scale OSW projects will be adopted in the UK and Germany with larger turbine dimensions and higher power capacities (Díaz & Guedes Soares 2020). Today, the total onshore wind capacity still exceeds the installed OSW capacity in Europe (Wind Europe I 2022). However, this distribution might change because OSW turbines offer significantly higher power capacities per installed unit than onshore turbines (Turbines DK 2022). The European countries currently possessing the most extensive offshore capacities are Denmark, Germany, and the UK (Díaz & Guedes Soares 2020).

Other European countries like Sweden seek to adopt OSW and contribute to the further diffusion of the technology (Wind Europe II 2022). Hence, Sweden is experiencing many applications for building permits for OSW parks in the Baltic Sea (ibid.). The Senior Vice President of a Norwegian OSW company sees OSW as a significant opportunity for Sweden and states:

> "Sweden has great potential for offshore wind, which could not only contribute significantly to Sweden's targets of carbon neutrality by 2045 and Europe's net-zero target by 2050, but also ensure sufficient long-term power supply to the southern part of Sweden." (Author: Rasmus Errboe, Swedish Wind Energy Association I 2021; p. 20)

The EU's renewable energy targets align with the Swedish climate goals to reach 100% renewable energy production by 2040 and carbon neutrality by 2045 (IRENA 2020). Renewable energies such as solar, hydro, and wind contributed approximately 56% to the Swedish energy mix in 2019 (Swedish Wind Energy Association I 2021). However, the Swedish Wind Energy Association (2021) shows

that Sweden has a substantial deficit in adopting OSW capacities compared to other European countries.

1.3 Problem Statement

The following two paragraphs present the empirical and theoretical problems regarding OSW adoption. Firstly, the empirical problem describes the status quo of OSW adoption in Sweden. Secondly, the theoretical problem highlights theoretical blindspots in the existing literature.

1.3.1 Empirical Problem

The adoption of OSW in Sweden is expected to increase the share of renewables in the Swedish energy mix while at the same time diminishing the dependency on fossil fuels (THEMA 2021). Projections show that the Swedish energy demand will drastically rise from 140TWh to 240TWh until 2045 (Gode et al. 2021). Therefore, Sweden has to build additional energy capacities to meet the growing Swedish energy demand until 2045 (ibid.). This growing energy demand is needed within the Swedish industrial sector due to the future use of hydrogen for industrial manufacturing processes (Wallenberg & Lindsten 2021).

Thus, the Swedish government decided in 2022 to put the domestic OSW strategy on the political agenda to accelerate the adoption of OSW in Sweden (Regeringen 2022). The government introduced new policies which politically prioritise the adoption of OSW (Regeringskansliet I 2022). The policy package included two measures: (1) Identifying additional suitable offshore zones on Swedish sea territories till 2024 and (2) Tripling the possible yearly OSW production capacities from originally 30TWh to 120TWh (Miljödepartmentet 2022; Havs- och vattenmyndigheten 2022; Regeringen 2022). With the Swedish election in the autumn of 2022, a new government got into power with the political aim of increasing the share of nuclear power (Wickström 2022). This directional change in the energy policy added a high degree of uncertainty to the future adoption of OSW in Sweden (Sveriges Radio 2022).

However, even though OSW technology is maturing and being adopted in many European countries, the uptake of OSW in Sweden has been marginal (Wind Europe I 2022). The coastlines of Sweden possess vast OSW potential, but only 5 OSW parks with an overall capacity of 192MW were actively operating on Swedish waters in 2019 (Rapacka 2021; European Environment Agency II 2009). The neighbouring country of Denmark proves that OSW has the potential to contribute significantly as a key technology to a green energy mix with a yearly production capacity of 1.7GW in 2019 (Danish Ministry of Climate 2020). Therefore, it is of the utmost importance that OSW technology gets adopted in Sweden to increase the share of renewable energies in the Swedish energy mix. However, the permitting process for OSW parks in Sweden has significantly hindered entrepreneurs from adopting the technology. The Swedish Wind Energy Association (2021) outlines that between 2014 and 2020, merely 5% of the applications for OSW permits resulted in a building permit. This development puts the adoption of OSW in Sweden to a halt.

Implementing a mature technology such as OSW in society depends on various market players. For instance, entrepreneurs become key actors with the ambition to build an OSW park. OSW is being adopted in many other European countries, while the uptake in Sweden is slow. However, the adoption process is regulated in Sweden, and the entrepreneur needs a permit before the start of construction which forms a significant barrier. Therefore, the industry and academics have controversially discussed the permitting stage for OSW parks. However, fewer studies focus particularly on the entrepreneurial process of adopting OSW in Sweden. Hence, this study focuses on the entrepreneur's perspective investigating the entrepreneurial process to adopt OSW parks on the Swedish sea.

1.3.2 Theoretical Problem

The entrepreneur plays a major role in the adoption process of innovations (e.g. building OSW parks). However, it is challenging to depict innovation processes as linear, as the linear model (LM) of innovation suggests (Godin 2006). This model is one of the earliest conceptualisations of innovation processes and has been widely criticised for a too simplistic view of innovation from an entrepreneurial perspective (Balconi et al. 2010).

The study of Beveridge and Guy (2005) highlights that adoption processes are messy and complex. Therefore, an entrepreneur who wants to adopt an innovation must consider "the interplay of competing discourses of business and the environment, the flow of national and local technology politics, the trade-offs, compromises, deals and conflicting visions that constantly frame and reshape innovation processes."(Beveridge and Guy, 2005, p. 672). Thus, the entrepreneurial process to adopt sustainable innovations (e.g. OSW parks) is embedded in a complex and messy project environment.

The Multi-Level-Perspective (MLP) promotes a more complex and multi-dimensional conceptualisation of innovation processes from an entrepreneurial perspective (Avelino 2017; Markard 2012). Long et al. (2019) underline that the entrepreneur is one of the key actors in sustainable transitions (e.g. from fossil to renewable) with the capability to diffuse innovations in society. Nevertheless, the entrepreneur's ability to act can be curtailed during the adoption process due to various barriers that are embedded in the system (ibid.). Thus, complex structures already established in society can influence the entrepreneurial process to adopt innovation in different ways.

The entrepreneur engages during the adoption of OSW in an entrepreneurial process with the primary objective of constructing an OSW park on the Swedish sea. Nevertheless, the role of the entrepreneur and the adoption of OSW in Sweden form significant blindspots in the literature. Only a minor number of studies address OSW adoption in the Swedish context. These studies mainly focus on policy planning and conflicting interests among actors (Söderholm 2011; Waldo 2012; Hultman et al. 2022). However, the existing literature about OSW adoption does not particularly focus on the role of the entrepreneur in the adoption process. This gap in the literature makes the entrepreneur's perspective insufficiently represented in the OSW literature.

The adoption of renewable energies, such as wind energy, involves a lot of different actors, according to Beveridge and Guy (2005). The conflict assessment

of Hultman et al. (2022) for a large capital OSW project in Sweden unveiled that these projects depend on more than mere entrepreneurial decisions to adopt OSW. Hence, the entrepreneurial process to adopt an OSW park in Sweden is linked to a high plurality of different actors that influence the overall project process. Therefore, it is essential to investigate the complexity of this entrepreneurial process from a governance perspective acknowledging the multi-actor perspective that the entrepreneur is facing.

The literature insufficiently addresses the critical role of the entrepreneur in the adoption process of OSW. Furthermore, only a few studies focus on a country-specific approach that analyses the adoption process of OSW in Sweden. So far, no study combines these two blindspots in the literature studying the entrepreneurial process to adopt OSW in Sweden. Thus, it is relevant to contribute to a better understanding of the entrepreneur's role in adopting OSW in Sweden.

1.4 Research Aim and Question

This research aims to examine the entrepreneurial process of adopting OSW in Sweden from a governance perspective. As such, this study contributes to a better understanding of the entrepreneur's role in the adoption process. Therefore, this study focuses on the following two research questions:

What actor's influence the entrepreneurial process of adopting an Offshore Wind Park (OSW)?

How do these actors exercise agency and power to influence the adoption of OSW?

1.5 Delimitations

The renewable energy transition is a sustainable transition stretching typically over a long time (Geels 2019; Avelino 2011). For instance, transitioning from using horses to automobiles took several decades (Geels 2005). Therefore, it is essential to mention that this study depicts only a snapshot of the transition process from fossil to renewable energy. The entrepreneurial process to adopt OSW in Sweden is a part of the overarching energy transition that can be observed in many countries.

The permitting process to adopt OSW as an entrepreneur in Sweden is a regulated process which follows a given structure. Therefore, it can be assumed that certain actors involved in the process will remain the same in the Swedish context. Nevertheless, within the process lies a certain degree of versatility based on the specific adoption situation. Thus, the reader of this thesis has to consider that the insights of this study might only be adopted to a certain extent for other cases in different contexts. For example, the group of actors might differ depending on the situational and regional context. This forms a major delimitation of this research and acknowledges the versatility within every individual case of OSW adoption in Sweden or other countries in the world.

1.6 Outline

The paper is organised into four subchapters. In chapter 2, relevant literature and the analytical framework for the research will be presented. The methods and methodological choices will be described in chapter 3. Within chapter 4, the author elaborates on the empirics, the analysis, and the results. The paper ends with a discussion of insights and potential limitations of the study in chapter 5 and the presentation of conclusions in chapter 6 including recommendations for future research.

2. Literature Review and Theoretical Approach

This study considers the uptake of renewable energies (e.g. OSW) as an innovation process that is part of the ongoing energy transition from fossil energy to green energy production. The entrepreneur plays a central role in this transformative innovation process with the entrepreneurial ambition to adopt sustainable innovations in society. The theoretical foundation of this study builds on entrepreneur and innovation literature.

However, the literature provides no unifying conceptualisation of the entrepreneurial processes to adopt innovation. Therefore, different concepts concerning the role of the entrepreneur in innovation processes will be presented in the literature review. Furthermore, an extra chapter focuses on the entrepreneurial perspective of managing large capital projects (e.g. OSW parks). Afterwards, the theoretical approach highlights the concepts and models that will form a theoretical bedrock for the analysis of this study.

2.1 The Linear View on the Innovation Process

The entrepreneur plays a crucial role in the LM of innovation as one of the main drivers behind innovation (Joly 2017). Entrepreneurs can initiate radical changes by designing and implementing new products or processes (ibid.). Therefore, entrepreneurs can be defined as innovators motivated to win a specific economic benefit through the development and diffusion of a new product or process. Hence, Joly (2017) elaborates that the LM interprets the innovation process as something positive, replacing the established products and processes with something new. Compared to other innovation models that were established afterwards, the LM is

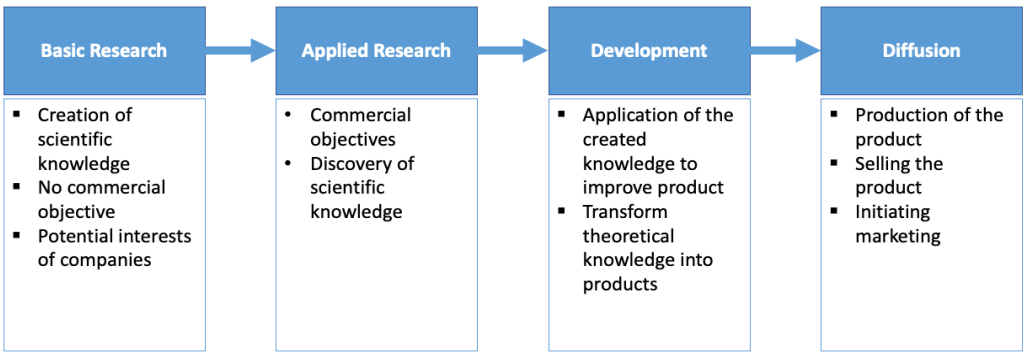

Figure 1. The linaer model of innovation (own illustration)

entrenched in a competitive and economic framework where innovation is driven by science and knowledge to increase the overall welfare in society (Joly 2017).

The LM of innovation suggests that innovation processes follow a linear path and subdivides the process into four main stages. The innovation process starts with basic research and continues with applied research and development, and the last stage forms the production and diffusion of innovations (see figure 1). The model is one of the early innovation models to conceptualise innovation processes (Godin 2006). According to Godin (2006) dominated the LM of innovation the understanding of innovation in science in the 1950s (Mowery 1983).

However, scholars have heavily debated the origin of the LM. The article from Leyden & Menter (2018) emphasises that the LM is closely related to Bush's (1945) publication of "Science: The Endless Frontier". However, Godin (2006) states that the first source of the LM remains unknown and argues that the model developed in three different stages through time. These development stages describes Godin (2006) as the following: "The first linked applied research to basic research, the second added experimental development, and the third added production and diffusion" (p. 20). Therefore, Godin (2006) doubts that the LM exclusively resulted from the works of Bush (1945).

Furthermore, underlines Godin (2006) that business schools and economists at the beginning of the 20th century have shaped the LM as a theoretical framework. At this time, the process of innovation was influenced to a high degree by the state and warfare. The strong dependency of innovation on the state can be observed in the Second World War, in which military interests mainly influenced research and innovation processes.

2.1.1 Understanding the Complex Nature of Innovation

The study of Beveridge and Guy (2005) points out that the entrepreneur faces a complex and messy innovation process. Therefore, it is difficult to depict the innovation process as linear as the LM of innovation suggests.

Hence, the LM has been widely criticised for this simplistic and linear view of innovation, failing to address the real-life environment of innovation processes (Balconi et al. 2010). In N. Rosenberg's book "Exploring the black box: Technology economics and history" the author went so far as to declare the LM of innovation dead (Rosenberg 1994). Other scholars refer to the wave of criticism as "linear model bashing" (Balconi et al. 2010; p. 1). Rothwell (1994) emphasises that different scholars tried to adapt the framework, which generated different approaches to the model. The intention was to include the complexity of innovation processes which the LM of innovation fails to address (ibid.). Nevertheless, Godin (2006) criticises that these reformation attempts looked "more like modern artwork" (p. 660) or, as Sharlin et al. (1981) refer to it as a "plate of spaghetti and meatballs" (p. 50).

The paper of Beveridge and Guy (2005) gives the reader a concrete example highlighting the complexity that lies within entrepreneurial innovation processes. The Guardian's article "Wind reaper" describes eco-entrepreneur Dale Vince and his renewable energy company's challenges with adopting wind energy in the countryside (Macalister 2004). According to the eco-entrepreneur, the adoption of wind energy is challenging due to planning delays and a high dependency on

municipal actors (Macalister 2004). Many different actors are involved in the adoption process of a wind turbine. Thus, it is relevant to "understand that innovation is something that emerges through the interactions of a wide range of actors" (Beveridge and Guy, 2005, p. 674). The entrepreneur initiates the adoption process with the desire to implement innovation at a specific location. Nevertheless, the success of these projects does not lay "solely within the heroic, semi-heroic or merely opportunistic individual" (Beveridge and Guy, 2005, p. 674).

However, the literature shows that several scholars defend a more simplistic view of innovation processes. In their essay “In defence of the linear model”, Balconi et al. (2010) emphasise that some criticism is not justified, and the model is blamed for many aspects without providing solid reasoning. For instance, Joly (2017) states that the LM has been applied in many innovation contexts because the framework is so simple, which makes it easy to understand and use in research. Balconi et al. (2010) highlight that the LM can still be used to study suitable cases in the future in combination with more complex conceptualisations of innovation processes.

In summary, the limitations of the LM are evident since the framework does not address the complexity of innovation processes from an entrepreneurial perspective. According to Balconi et al. (2010), the role of different actors in innovation processes in the LM is underrepresented because the model strongly focuses on corporations and universities as the key drivers of innovation processes. According to Balconi et al. (2010) this is a limited view and hence argue that innovation processes involve a wide variety of different public and private actors, which shape the innovation process through interaction. The entrepreneur is one of the actors playing a key role in the adoption of innovations and faces a complex and messy innovation process that can only be depicted to a certain degree within a linear model (Beveridge and Guy 2005). Therefore, it needs a more complex view of innovation processes. The conceptualisation of innovation that is presented in the next chapter is an attempt to depict innovation as multidimensional.

2.2 The Renewable Energy Transtion

The ongoing energy transition towards more renewable energies is a transition to tackle the high emissions from the current energy regime. Transition scholars investigate those long-term societal processes (e.g. from fossil to renewable energies) causing profound socio-technical changes to steer towards more sustainability (Zolfagharian et al. 2019). These processes include multiple societal and organisational dimensions and aim to address persistent problems such as resource depletion or climate change (Grin 2016, Markard 2012).

The transition literature has put a high emphasis on the energy transition through various studies focusing on renewable energy transitions in several European contexts (Verbong & Geels 2007; Verbong et al. 2008; Kern et al. 2015; Geels et al. 2016; Sovacool & Geels 2016; Sovacool et al. 2020; Bhattarai et al. 2022). For instance, Kern et al. (2015) investigated the empowerment dynamics of OSW in a comparative study to better understand the low deployment rates of OSW in the Netherlands compared to the UK. It is stated that OSW is a promising technological

approach to transform the incumbent energy system towards more renewable energies (ibid.).

2.2.1 The Multidimensional View on the Innovation Process

The Multi-Level-Perspective (MLP) attempts to conceptualise complex transition processes such as the energy transition towards renewable energies. The MLP follows a fundamentally different approach than the LM of innovation, which has been criticised for a one-dimensional view of innovation from an entrepreneurial perspective. The MLP recognises that innovation processes are shaped by multiple actors that are situated in different dimensions. Therefore, the MLP depicts innovation processes as multidimensional and more complex than other innovation models (e.g. LM of innovation).

In the MLP possesses the entrepreneur the role of a coordinator during the transition process. Thus, the entrepreneur is embedded in an entrepreneurial ecosystem influenced by multiple actors (Long et al. 2019). All these actors influence the entrepreneurial endeavour to develop an innovation with the objective to establish it in the incumbent system. Long et al. (2019) elaborate that the entrepreneur faces limitations and barriers on the regime level, which make it challenging for the entrepreneur to make the innovation a success within the regime. Long et al. (2019) emphasise that the entrepreneur has the role of coordinating different interests in order to overcome these challenges.

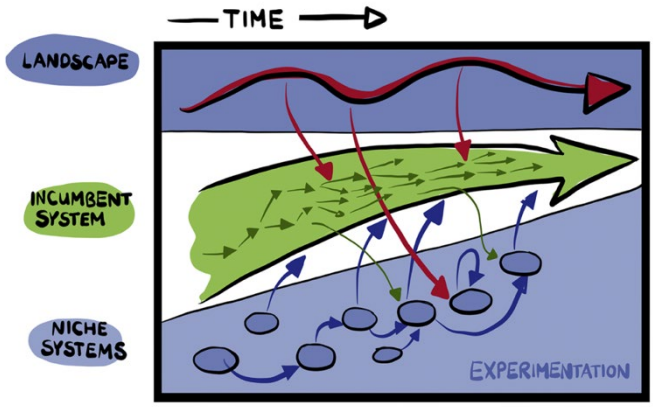

Figure 2. The Multi-Level-Perspective (Van Rijnsoever & Leendertse 2020)

The MLP (see figure 2) builds on the assumption that technological innovations and transitions are socio-technical (Geels 2020). Hence, it is essential to acknowledge that innovative change is embedded in a societal system, taking different parameters into account as cultural meanings, policies, or consumer practices (Geels 2020; Berkhout 2014). Therefore, the MLP intends to capture the broad picture by providing a conceptualised model to analyse internal and external processes from a multidimensional perspective (Schot & Geels 2008; Rip & Kemp 1996). The MLP follows a multi-level approach with interrelations between all dimensions. The three dimensions of the MLP are the following: Niche system (micro level), incumbent system (meso level), and the socio-technical landscape

(macro level). The MLP assumes that shifts in the incumbent system are caused by the interaction between all three levels, as illustrated in figure 2 (Schot & Geels 2008). The socio-technical landscape provides the broader picture and considers macroeconomic patterns or demographic trends. Typically, the dynamics in the socio-technical landscape change slowly but directly influence the regime and the niche level (Geels 2011). The incumbent system can be described as the prevailing socio-technical regime (e.g. current energy system) standing symbolically for the stability of the status quo (ibid.).

Geels (2011) emphasises that niches are the seeds of socio-technical transitions and hence a central element of the MLP. According to Schot & Geels (2008) are niches created and maintained intentionally by governments or firms to protect technological novelties from existential threats. Therefore, a niche can act as a protected space in which uncompetitive innovation can be tested, developed, and evaluated. Niche actors expect the niche to bear fruits over time and eventually become a "hopeful monstrosity" (Schot & Geels 2008; p.4). A niche innovation can stabilise over time and use a "window of opportunity" to merge with the existing regime to influence the socio-technical landscape in the future (ibid.).

The general insights about multidimensional innovation processes have become increasingly important in business studies. There have been several attempts of scholars to connect the two fields of transition and business studies. Most scholars were particularly interested in investigating the connection between business models and transition processes (Loorbach & Wijsman 2013; Bidmon & Knab 2018; Hernández-Chea et al. 2021; Schaltegger et al. n.d.; Bolton & Hannon 2016). Bidmon & Knab (2018) elaborate that business models can majorly impact transitions. For instance, business models are applied by different regime actors (e.g. firms or organisations). Established business models are thus a fundamental part of the regime with the ability to stabilise the status quo and to resist transformational change towards more sustainability.

However, novel business models can empower and influence the diffusion of emerging innovations. Novel business models can facilitate and support a niche innovation while growing from a niche to an innovation that diffuses on the regime level to cause structural change (ibid.). Recent studies show that transition and business studies have grown closer, with scholars building new bridges between the two disciplines.

2.3 The Complexity of Large-Capital Projects

In the previous chapter, the MLP depicted a more complex picture of innovation processes than the LM of innovation. Nevertheless, both models do not address the entrepreneurial adoption process of innovations from a project management perspective. Therefore, the following chapters introduce the discipline of project governance to understand the complexity that the entrepreneur is facing in large capital infrastructure projects (e.g. OSW park).

2.3.1 The Project Governance of Large Capital Projects

According to Bekker (2014), project governance is a relatively new field of study which appeared in the 1990s due to an increasing interest in steering large capital projects on a strategic and managerial level (Flyvbjerg et al. 2004). Ruuska et al. (2011) suggest that project governance can be divided into three different categories of analysis:

1. A single firm that is using governance to manage various internal projects.
2. Multi-firm projects involving many companies in a project based on contractual agreements.
3. Projects in which a network of multiple actors are involved with the presence of one overarching authority (e.g. lead sponsor or underwriting firm).

Nevertheless, Morris & Geraldi (2011) argue that project governance needs a further categorisation based on different institutional contexts for projects. This suggestion led to categorising the three functional levels of technical, strategic, and institutional (see figure 3). The technical level focuses on operational dimensions and practical management tools to manage and steer project activities. The strategic level describes the mechanisms used to lead the project in terms of project strategy and managing external stakeholders to match the overall project ambitions. The institutional level concerns the management of the external environment, such as institutions.

Furthermore, Bekker (2014) introduced the "school of thought", which resulted in three specific project governance cases: (1) Single firm (SF) school, (2) Multi firm (MF) school, (3) Large capital (LC) school. However, this literature review will focus on the LC school since this thesis investigates large-scale OSW parks. These projects are typically very capital-intensive and lengthy, involving various institutional actors throughout the entire project process.

2.3.2 The Large Capital (LC) School

The large capital (LC) school addresses large capital projects such as OSW parks. The concept defines projects as time-limited organisations that need to define governance standards where project-based decision-making can occur (Bekker & Steyn 2007). Large capital projects typically contain complex project structures involving various private and public actors on an international or cross-country scale (Bekker 2014). Ruuska et al. (2011) elaborate that large capital projects are often challenging to govern due to the high complexity of internal multi-firm involvement and a vast network of external actors. Therefore, the focus of project governance shifts away from the technical and strategic level to the institutional dimension and the macro environment (see figure 3).

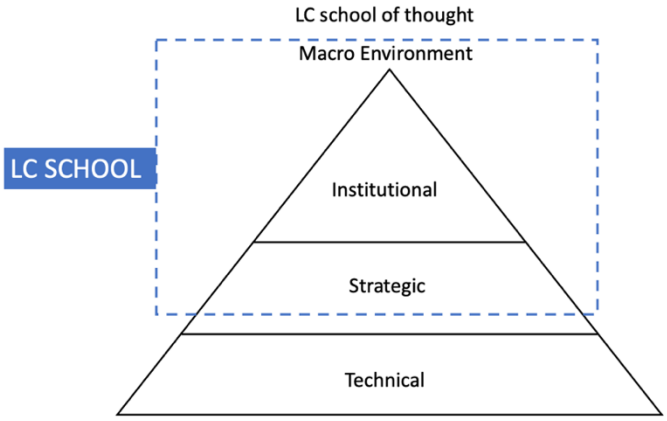

Figure 3. Large-capital (LC) school of thoughts (inspired by Bekker 2014)

Decision-making is a central pillar in the governance of large capital projects. Effective project governance aims to build a protected project environment in which project management activities can be executed (Bekker 2014). Klakegg et al. (2008) went a step further and thus proposed the need for a traditional and structured approach within the lead firm to steer the project in a desirable direction. Generally, the governance of a large capital project is linked to a high degree of uncertainty according to Winch (1989). This means that good project governance in large capital projects has the objective to decrease uncertainty over time. Bekker (2014) emphasises that the application of governance can be observed mainly in the LC school compared to the other project categories. LC projects are highly complex due to many involved actors. Therefore, LC projects need a structured and tailor-made project governance framework to overcome these challenges.

2.4 Theoretical Approach

The adoption of an OSW park is a large-capital project requiring vast investments and the development of new infrastructure to function (e.g. sea cable, wind turbines). Once the OSW park operates, it is expected to produce green energy contributing to a desirable transition towards more renewable energies. The entrepreneur plays a key role in the adoption process and initiates the overall project process with the desire to adopt OSW at a specific location in Sweden. The entrepreneur needs a permit to be legally allowed to construct an OSW park on the Swedish sea. The theoretical approach of this study argues that the entrepreneur is engaged in a complex and messy entrepreneurial process during the adoption of an OSW park. The overall aim of this research project is to investigate the entrepreneurial process from a governance perspective. Hence, the first chapter focuses on the governance perspective of OSW park projects to target the first research question. Afterwards, the second chapter introduces the exercise of agency and power to the reader to address the second research question.

2.4.1 Adopting a Governance Perspective on OSW Projects

As described in the introduction, this paper identifies the need to consider the entrepreneurial process of adopting an OSW park on the Swedish sea as a complex and messy process. One characteristic that symbolises the high degree of complexity in this type of project is the involvement of multiple actors in the adoption process (Hultman et al. 2022). Since the entrepreneur has to get a permit to build the OSW park, a lot of other actors become part of the project process. Therefore, a governance perspective needs to be adopted to investigate OSW park projects because it acknowledges the plurality of actors shaping the entrepreneurial process. Therefore, it is crucial to identify involved actors in the entrepreneurial process. Thus, it needs a suitable theoretical model to analyse and structure the collection of identified actors.

The author of this thesis selected the Multiple-Actor-Perspective (MAP) as a model to analyse and identify relevant actors who influence the entrepreneurial process to adopt OSW parks in Sweden (see figure 4). Transition researcher Flo Avelino developed the model to investigate power relations and dynamics between actors (Avelino & Wittmayer 2016). The MAP provides a suitable theoretical framework for this study to address the first research question. The author of this thesis expects that many actors are influencing the entrepreneurial process to adopt OSW parks in Sweden. Hence, the identification of actors could become chaotic due to the mere quantity of actors. The MAP helps to mitigate this effect, ensuring coherence and structure throughout the identification process. In order to cope with chaotic actor environments, the model offers four separate actor constituencies: State, market, community, and the third sector. The model gives clear examples of actors that are part of a particular actor constituency helping the author to allocate the identified actor. Besides the different actor constituencies, the model shows readers how actors can be defined through characteristics (e.g. non-profit or for-profit).

The MAP promotes an extra sector that forms the model's centre, including NGO's, apart from the community, state, and market sectors. According to Avelino & Wittmayer (2016), the third sector's purpose is to present the big picture drifting away from a two-sector focused view that is merely related to the state and the market.

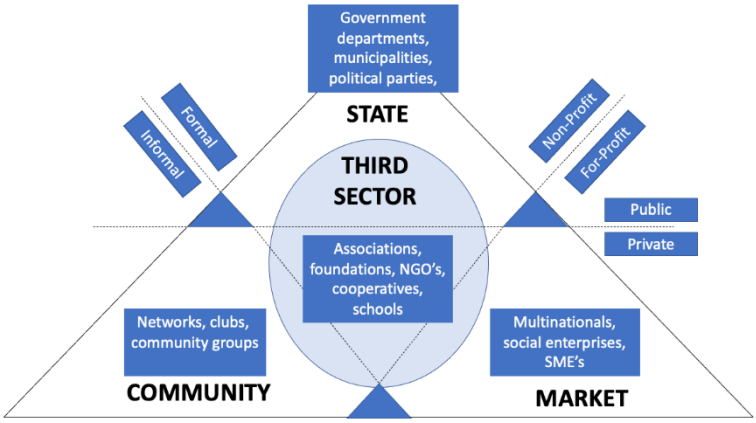

Figure 4. The Multiple-Actor-Perspective (inspired by Avelino & Wittmayer 2016)

The theoretical approach of this thesis assumes that the entrepreneur engages in an entrepreneurial process which involves a high plurality of actors. The high number of involved actors highlights that large capital OSW park projects in Sweden have to be analysed from a governance perspective. The author of this thesis underlines that the first step is to identify relevant actors that shape the entrepreneurial process. Identifying actors with the MAP forms a solid bedrock to go a step further and analyse how actors influence the entrepreneurial process. Thus, the following chapter will focus on the exercise of agency and power, addressing the second research question.

2.4.2 The Exercise of Agency and Power in OSW Projects

The entrepreneur engages in a complex entrepreneurial process to adopt OSW on the Swedish sea. Following the governance perspective, there is a high number of actors using agency and power to influence the entrepreneurial process. Therefore, this section will introduce the theoretical approach to analyse how actors exercise agency and power. This section addresses the second research question, which explores the influence of actors on the entrepreneurial process of OSW adoption.

Since the research aim is to investigate the entrepreneurial process from a governance perspective, it is important to underline that all actors are connected through their use of agency and power, which influences the entrepreneurial process. Here, the author adopted from Barker (2002) that the exercise of agency at its core can be defined as "the socially constructed capacity to act"(p.24).

Therefore, a suitable concept to analyse prevailing power relations and the exercise of agency in the entrepreneurial process is needed to address the second research question. The transition literature and its most popular conceptualisation

model, the MLP, have been widely criticised for a neglected emphasis on agency and power (Geels 2019; Avelino 2017). This criticism led to several research initiatives to investigate the relevance of agency and power concerning sustainable transitions (Geels 2019; Avelino 2017; Avelino 2011). Transition researcher Flo Avelino devoted her research to investigate the role of power in sustainable transitions. She criticises that the MLP provides a limited understanding of power (Avelino 2017; Schot & Geels 2008; Rip & Kemp 1996). Therefore, a more dialectic understanding of power is needed to acknowledge the enabling and constraining sides of power, which can be broadly defined as "the (in)capacity of actors to mobilise means to achieve ends" (Avelino, 2021, p. 440).

The exercise of power and agency among actors might play an essential role in the entrepreneurial process of building an OSW park in Sweden. Therefore, Avelino's typology of power (see table 1) will be used as a theoretical approach to better understand the exercise of power among actors in OSW park projects in Sweden. Avelino states that power can generally be described "as the (in)capacity of actors to mobilise resources and institutions to achieve a goal" (Avelino 2017; p.3; Avelino & Rotmans 2011; p.3). Most of the power literature distinguishes merely between "power over" and "more/less power to" (Avelino 2011). However, transition researcher Flo Avelino extended the framework by adding a third type of power defined as the "different power to" (Avelino 2017; Avelino 2011). According to Avelino (2021), the third type of power aims to perceive power not only from its quantitative nature, which merely expresses in forms of (in) equalities in power relations. The typology of power unites all three types of power in one framework and suggests power dynamics that can result from a power relation. Therefore, Avelino (2017) emphasises that it is crucial to understand that a power relation between two or more entities can show various types of power relations which are linked to a certain power dynamic.

The author of this thesis organised the different power relations and dynamics in a table (see table 1). The objective of the table is to make the concept of power comprehensible to the reader. Furthermore, these concepts are generally not linked to business studies. Therefore, the table contains a general example and an explicit example from the field of business studies. The author is aware that this study is written within business studies. Thus, it is important to make readers with a business background more familiar with the concepts that will be used to analyse power in this study.

Table 1. Typology of power relations and dynamics (inspired by Avelino 2017)

Power relations	Power dynamics	General example	Business example
Power over….	*Mutual dependence*	A and B have power over each other	Company A and B are having a customer supplier relationship.
	One sided dependence	A has power over B (B depends on A)	The production of company A depends on the supply of a specific component from company B. There is only company B who offers the component on the world market.

More/less power to…	*Cooperation*	A has more power than B. Both follow collective goals	Company A cooperates with government institutions to accelerate the expansion of green energy production on a national level.
	Competition	A has more power than B. Both follow their own goals	Company A and B compete with each other to survive in a challenging market environment.
Different power to…	*Synergy*	A and B use different powers to support each other	Company A and B are using different market positions to support each other.
	Antagonism	A and B use different powers to resist each other	Company A and B are using different market positions to resist each other.

In summary, this part of the theoretical approach suggests that the exercise of agency and power influences the entrepreneurial process to build an OSW park on the Swedish sea. Therefore, this thesis will use the typology of power as a theoretical approach to investigate power relations and dynamics between relevant actors.

3. Method

The method section starts with a description of the case study research design as a methodological approach for this study. The chapter presents the unit of analysis and relevant validation criteria to ensure the quality of research. The next chapter introduces the sample group and the applied data collection methods to collect primary and secondary qualitative data for the analysis. The frame analysis forms the analytical foundation for the data analysis and is explained to the reader in a separate chapter. The method section ends with a critical reflection on the methodological choices.

3.1 Case Study Research Design

The overarching research aim of this study is to investigate the entrepreneurial process of adopting OSW parks on the Swedish sea from a governance perspective. A well-fitting approach to do this is to investigate a real-life OSW park project that is currently in the planning phase in Sweden. Therefore, the methodological approach for this thesis builds up on a qualitative case study which will examine one particular OSW park project in the economic zone of the Swedish Baltic Sea.

Business studies is a part of social sciences. Thus Flyvbjerg (2006) underlines that a case study is a suitable research approach to investigate a specific phenomenon or research field within social sciences to answer the research questions. A case study is based on an in-depth examination of a certain situation or system and "is expected to catch the complexity of a single case" (Stake 1995; p.6). Bell et al. (2019) emphasise that single-case research can focus on a single organisation, location, person, or event. In this case study, the focus is set on the event of adopting an OSW park in the Baltic Sea which forms the unit of analysis.

The construction of an OSW project in the Baltic Sea is a large capital project and includes various public and private actors. All these actors are engaged in the adoption process of OSW, which is linked to a single location. The examined case is representative since the variation of main actors involved in adopting an OSW park in the economic zone of Sweden is similar apart from the company that intends to apply for a building permit. Thus, this case study considers the different social actors who are involved in the case project as the units of observation.

Case studies are mostly linked to qualitative data collection methods focusing on contributing to a better understanding of the field of research (Bell et al. 2019). In a case study, different data collection methods can be combined. This thesis primarily focuses on the collection of primary qualitative data sets. However, freely-accessible secondary qualitative data will be retrieved as a complementary source of data.

Nevertheless, the collection of data aligns with the case study design of this thesis targeting on data that is linked to the selected case (Hoox & Boeije 2005). The considerable strength of a case study research design is, according to Bell et al. (2019), that it can be used as a representative or typical case which gives the possibility to conclude for similar cases. Therefore, a case study exemplifies the complexity of OSW adoption on the Swedish sea.

3.1.1 Trustworthiness of Qualitative Research

The subject of rigour addresses the quality of research (Lincoln 1995). Therefore, the author needs to ensure that the case study about OSW adoption in Sweden possesses a high research quality. Hence, in the following paragraph, different parameters will be presented to ensure the trustworthiness of the qualitative research. Bell et al. (2019) state that standard quality criteria, such as internal and external validity, are most commonly used in quantitative research. However, other scholars tried to investigate further and apply the different criteria for qualitative research purposes (Lincoln & Guba 1986; Golafshani 2015; Bell et al. 2019). This thesis will take a closer look into the trustworthiness criteria for qualitative research introduced by Lincoln & Guba (1986), which are closely linked to validity and reliability (Bell et al. 2019).

Credibility and Transferability

Credibility in qualitative research is linked to internal validity in quantitative research (see table 2). It needs to be ensured that the research findings and conclusions are credible to ensure the qualitative study's trustworthiness. Internal validity is described in quantitative research as the casualty of relationships between different variables (Bell et al. 2019). According to Cope (2014), a research's credibility increases if the author shows engagement and observation methods.

Transferability focuses on the criteria if the research findings can be applied in different contexts and refers to external validity in quantitative research (see table 2). Bell et al. (2019) underline that external validity in quantitative research describes the degree of generalisation of the case study. Therefore, Cope (2014) explains that a high degree of transferability of qualitative research results has to provide meaning to other individuals that are not directly involved in the research.

Table 2 Criteria of trustworthiness and parallels to validity criteria (inspired by Bell et al. 2019)

Qualitative Reearch	Quantitative Research	Main Question
Credibility	Parallels to Internal Validity	How believable are the findings?
Transferability	Parallels to External Validity	Do the findings apply to other contexts?

Researchers carry a responsibility when it comes to securing the rigour of their studies. Therefore, it is vital to evaluate and apply the concepts of trustworthiness as a researcher (Lincoln 1995). According to Cope (2014), different measures can increase the trustworthiness of qualitative research. Triangulation, for instance, is a strategic approach to increase credibility by using different sources for data collection (ibid.). Furthermore, Houghton et al. (2013) elaborate that prolonged engagement is an approach that can increase trustworthiness. Prolonged engagement describes the process of trust building with potential interview partners to collect the best possible data. This process primarily needs time to understand the participants of the research project (Cope 2014).

This thesis used primary qualitative data, which was collected from different sources. The wide variety of sources improved the overall credibility of this research project. Additionally, secondary qualitative data was used as a complementary data source to contribute to a deeper understanding of the topic. The unit of analysis in this study is a single case OSW park project in the Swedish economic zone of the Baltic Sea. Therefore, sampling is essential in order to select relevant social actors that are involved in the case project.

3.1.2 Purposive Sampling

According to Bell et al. (2019), purposive sampling is a strategic approach to target suitable sample units based on the overall research question. The author has chosen to use purposive sampling as a strategic approach to detect and select relevant units for the sample group. Hence, units become part of the sample group if they contribute to answering the research questions.

Moreover, Teddlie & Yu (2007) distinguishes between sequential and non-sequential purposive sampling. The sequential sampling provides a more flexible and less-fixed sampling approach where the researcher starts with a sample but adjusts the selected units over time (ibid.). Hence, the author applied a sequential purposive sampling strategy in order to allow adjustments to the sample size. This decision is based on the complexity of a large-scale OSW project. It often needs comprehensive research and time to unveil relevant actors. The following social actors have been selected as a sample group for this study:

Table 2. Selected sample group

Sample Group Actors	Description
The Swedish Energy Agency	The agency is regulated by the government and manages the supply and energy use in Sweden. The goal is to steer the Swedish energy transition towards renewable energies (Energimyndigheten 2022).
The Swedish National Grid Operator	The agency is state-owned and is the leading system operator for the Swedish grid system (Svenska Kraftnät 2022).
The Swedish Agency for Marine and Water Management	The agency is a government agency and has the primary responsibility to protect the marine life in the sea (Swedish Agency for Marine and Water Management 2022)
The County Administrative Boards	Sweden has 21 County Administrative Boards, further divided into separate municipalities. All these are government authorities that work with permitting and supervision on a regional dimension (Länsstyrelsen 2022).
OSW company	OSW companies are market actors with the entrepreneurial ambition to adopt an OSW park on the Swedish sea. They are the project developers and must apply for a building permit to build an OSW park.
Swedish Research Institutes	Research institutes represent independent organs that engage in scientific research.
The Swedish Armed Forces	A government agency that has the task of ensuring the defence capabilities of Sweden (Försvarsmakten 2022).
The Swedish Government	The government is the highest political organ in the country. The main task is to form new laws and to steer Sweden politically on a national and international level (Regeringskansliet II 2022).
Non-Govermental Organisations	This type of organisation is not owned or steered by the government. A particular social purpose usually drives NGOs, and most are non-profit organisations (Karns 2022).

3.1.3 Primary Qualitative Data

In this study, primary data has been collected through qualitative interviews. The interviews were conducted with individuals working for an organisation of the selected sample group. These individuals are directly or indirectly involved with their work in the case project. The author conducted eight semi-structured interviews with individuals that have different occupations. The collection of interviewees has been summarised in the following table:

Table 3. Overview of interviewees

Sample Group Actors	Occupational role
The Swedish National Grid Operator	Grid Connection Planner
OSW company	OSW Entrepreneur
Swedish Research Institute	Marine Biologist
Swedish Research Institute	Defence Researcher
Swedish Energy Agency	Innovation Planner
The County Administtrative Board	Marine Planning Coordinator
Non-Governmnental Organisation	OSW Industry Coordinator
The Swedish Agency for Marine and Water Management	Environmental Investigator

In-depth semi-structured interviews are a popular data collection method in qualitative research and can either be conducted in a group or as an individual (DiCicco-Bloom & Crabtree 2006). The latter interview option has been applied for this research. The decision to conduct interviews with individuals instead of groups allowed the interviewer to create a deeper understanding by focusing on one individual at a time. In order to ensure a structured process and coherence, the step-to-step process for semi-structured from DeJonckheere & Vaughn (2019) has been used as a guideline for conducting the interviews (see figure 5).

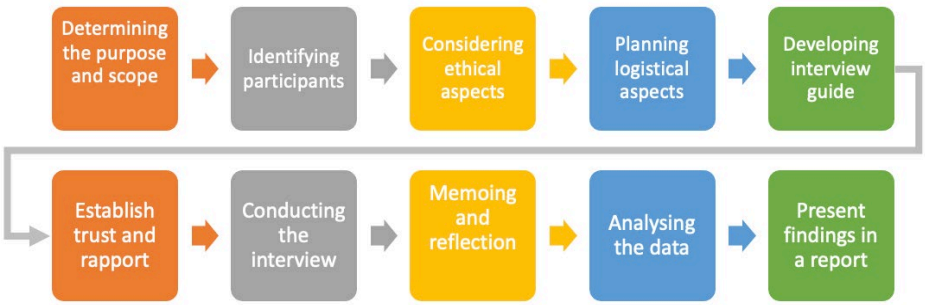

Figure 5. Designing and conducting semi-structured interviews (inspired by DeJonckheere & Vaughn 2019)

The interview guide was a central pillar to conducting semi-structured interviews, as depicted in figure 5 (Bell et al. 2019). Therefore, the author developed a tailor-made interview guide for the semi-structured interviews that left enough space for the interviewee to provide in-depth answers (see appendix 1). The structure of the interview guide is based on the idea that after a short introduction, the focus is set as follows:

(I) Involvement in OSW adoption
(II) Challenges that the represented organisation is facing
(III) Potential solutions to overcome these challenges

Moreover, semi-structured interviews are a suitable research method because they offer an interactive instrument to discuss the complexities of a subject. Bell et al. (2019) state that semi-structured interviews are suitable for qualitative researchers because they can be characterised as a flexible and open data collection method. The high flexibility and focus on one unit of observation at a time were the main reasons that the author decided to use qualitative interviewing as a primary method for data collection in this thesis. Another essential aspect of semi-structured interviews is that the number of conducted interviews should not primarily drive the researcher. According to Bell et al. (2019), it is not necessarily about the total number of interviews but the quality of the collected data to answer the research question.

Synchronous Online Interviews

The interviews were conducted online via Zoom. The preferred language was English. Nevertheless, this research focuses on the Swedish context of OSW adoption, and most of the interviewees were Swedish native speakers. Therefore, they could answer in Swedish if they felt it would be easier to express themselves in a certain field of interest. The decision to use online interviews saved time and resources. The online interview format made it possible to contact people who were not close to the researcher's location. The conducted online interviews were synchronous, meaning that the interview questions were immediately answered by the interviewee (Bell et al. 2019). According to O'Connor et al. (2008) are, synchronous interviews significantly beneficial because they "closely resemble a traditional face-to-face interview" (p.5).

However, online interviews bear a risk that the researcher cannot build a trustful connection with the interviewee. This might make it difficult for the interviewee to discuss with the interviewer if there is a lack of trust (Bell et al. 2019). Therefore, the interviewer must build up a certain level of trust during the interview and in the communication beforehand. Another vital part of the interview is that the interviewer ensures technical stability during the interview and a calm interview environment. Therefore, the interviewer has chosen a calm interview environment to prevent any disturbance. A significant benefit of synchronous interviews on Zoom is that the interview could be internally recorded. This feature ensures the best audio quality for the recording and further data analysis. The recordings were further processed with transcription software using artificial intelligence.

3.1.4 Secondary Qualitative Data

Secondary qualitative data was used as a complementary source for this research. Flick (2018) emphasises that qualitative interviews as a single source of data can be problematic since "people are subject to forgetfulness and may recall details inaccurately" (p.242). The case study research design allows researchers to use multiple data collection methods. Therefore, the author decided to use secondary qualitative data in addition.

The chapter about the trustworthiness of qualitative research underlines that triangulation is a strategic measure to collect relevant data from different sources. This approach improves the overall credibility of the study. Flick (2018) refers to methodological triangulation as an approach to using multiple methods for data collection. The decision to use interviews as the primary source of data and secondary qualitative data as a complementary data source improved the overall trustworthiness of the qualitative study. Moreover, it gives the researcher a chance to analyse freely accessible data if the primary source of data collection fails. Since many different actors are involved in the selected sample group, it was realistic that interviews can not be held due to organisational or time constraints. The secondary data can thus be used as a backup, adding a high level of flexibility and security to the overall data generation.

The author participated in a webinar about OSW development in Sweden organised by the Swedish Energy Agency to collect secondary data. The webinar was recorded and uploaded to a video platform afterwards, which assured free data access for the researcher. Additional secondary qualitative data from a video recording has been retrieved from a public information meeting initiated by the case company with the local municipality. The meeting has been recorded and uploaded to the company's website. Lastly, the video recording of a hearing from the Stockholms Chamber of Commerce about OSW adoption in Stockholm County has been used as a secondary data source.

The recorded videos were subdivided into multiple parts with different speakers and presentations. The author decided to prioritise the data and to select merely sections of the data that fit to address the research focus. This prioritisation aligns with the purposive sampling approach presented in the previous chapter. This strategy selects only relevant information that contributes to the focus of research (Bell et al. 2019).

3.2 Analytical Approach

The author of this paper has chosen frame analysis as an analytical approach for this research. In the following two paragraphs, the author presents frame analysis as an analytical approach. Furthermore, the data analysis chapter provides the reader with information about the different steps of data analysis.

3.2.1 Frame Analysis

The early works about frame theory were dominated by Mead (1934) and Bateson (1955). They emphasised that framing is about meaning-making, created through social interaction. Gregory Bateson (1955) investigated the social interaction of monkeys, arguing that it needs a specific dimension of metacommunication among the animals to interpret if an interactive situation is threatening or playful. The research of Mead (1934) and Bateson (1955) led to the introduction of frame analysis by Erving Goffman (1974), who established the idea that frames are created through a meaning-making process in social interaction. The creation of particular frames is entrenched in social constructivism, considering that frames are

influenced by multiple actors who engage in various meaning-making processes (Möckel 2020).

Entman (1993) acknowledges the socially constructive nature of framing and states that it is generally about selecting and prioritising certain bits of reality while leaving others behind. Therefore, it is about highlighting certain bits of information to spotlight a specific area within the subject. These frames can be detected in different forms of communication (speaking or writing) with the possible effect of making the unique selection of aspects salient (ibid.). Frames are robust since they can transport a wide range of definitions, diagnoses, and solutions. Entman (1993) emphasises that once a specific frame is established in society, it can become increasingly difficult to change the framing afterwards.

The analytical approach for this paper provides a framing analysis based on the insights of van Hulst & Yanow (2016). This approach addresses framing in policy-making processes and defines three crucial categories of framing: (I) Sense-making, naming, (II) Selecting, and (III) Categorising and storytelling. Van Hulst & Yanow (2016) developed a suitable approach to study framing in policy processes. The application in various studies proved that it is a suitable framework for analysing processes involving various actors (Möckel 2020). Hence, the analytical approach is well-fitting regarding the governance perspective on OSW park projects.

The frame analysis approach of Van Hulst & Yanow (2016) is subdivided into three different topic areas: (I) The substance content, (II) The identities and relationships of situational actors, and (III) The policy process itself. This research focuses on identifying different actors that exercise their agency and power to influence the entrepreneurial process to adopt an OSW park project on the Swedish sea. Therefore, it is essential to investigate how different actors make sense of their relationships and identities. Therefore, this thesis will choose the second framing topic as the main focus of analysis to analyse the identities and situational framing of different actors.

Table 4. Topics of analayis and questions for frame analysis (inspired by Westin 2019)

Framing Topic	Framing category	Diagnosis
The identities and relationships of situational actors	Multiple actor perspective	*What actor's influence the entrepreneurial process of adopting an Offshore Wind Park (OSW)?*
The identities and relationships of situational actors	Exercise of agency and power	*How do these actors exercise agency and power to influence the adoption of OSW?*

The author of this thesis suggests two different framing categories within the framing topic of identities and relationships between situational actors (see table 4). The framing categories showed the author the limitations of this frame analysis and helped to focus on framing sections relevant to the overall research aim. Therefore, the first framing category intends to analyse the framing around the multiple-actor perspective. This means that this part of the frame analysis searches the data for specific frames related to a high number of actors involved in the entrepreneurial process. The framing category is crucial to answering the first research question and collecting information about multiple actors involved in OSW park projects. The second framing category focuses on the exercise of agency and power. Therefore, the focus in this part of the frame analysis is how different actors use their framing around agency and power regarding the adoption of OSW parks. The second part of the frame analysis focuses on the second research question to find framing patterns of how different actors are using their agency and power to influence the entrepreneurial process to adopt OSW parks in Sweden.

3.2.2 Data Analysis

The frame analysis focuses on the spoken language of the units of observation. The following flow figure illustrates the data analysis approach that has been chosen for the frame analysis:

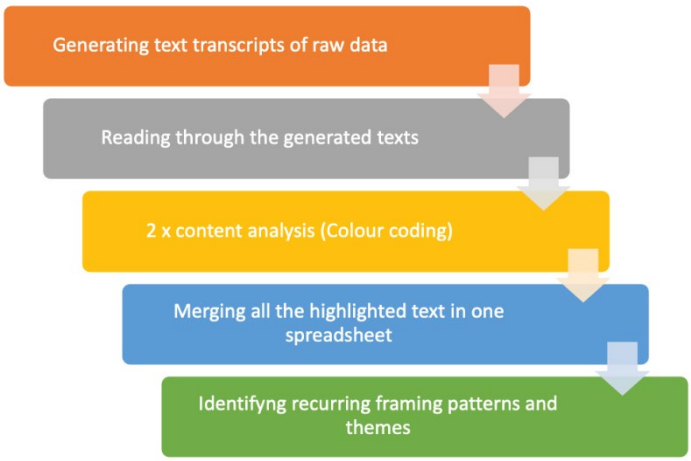

Figure 6. Data analysis approach (own illustration)

Since the interviews and videos were recorded on audio, they needed to be transcribed into text to prepare and organise the data for further analysis. As the first step, the author reviewed two times the transcribed text data without marking the text. This approach helped the author to explore and familiarise with the collected data before the frame analysis begins. According to Entman (1993), content analysis is essential to the overall frame analysis. Therefore, the author conducted two rounds of content analysis, including colour coding. The first round of colour coding focused on the first framing category analysing the framing concerning the multiple-actor perspective in OSW park projects. The author marked text sections when they clearly connected to the first framing category. The

same procedure has been applied to the second framing category, which focuses on the framing around the exercise of agency and power of involved actors in OSW park projects. The colour-coded text sections have been organised in a separate spreadsheet for easier handling of the data sets. Afterwards, the collected frames were further analysed in the spreadsheet. In the analysis's last stage, the author detected reoccurring framing patterns in the marked text sections. The occurring framing patterns and themes were used for the further analysis of this research.

3.3 Discussion of Methodological Choices

The author has chosen a case study research design for this thesis using qualitative interviews as a primary data collection source. In the following, the author discusses the case study research approach and the advantages and disadvantages of qualitative interviews.

The previous chapter stated that conducting a case study is a suitable tool to investigate a specific case to find insights that can contribute to a better understanding of similar cases (Bell et al. 2019). However, in the case of adopting an OSW park in Sweden, this approach comes with an explicit limitation which makes it only representative to a certain extent. In the case of Sweden, the government regulates the adoption of OSW. Thus, the entrepreneur who applies for a building permit faces similar processes and challenges regardless of where the OSW park is planned.

Nevertheless, it needs to be emphasised that other cases of OSW adoption in Sweden can differ from the specific case of this study. This could mean that key actors might change compared to the case presented in this paper. Especially talking about other countries, the presented case is only representable to a certain extent. Other countries might have fundamentally different systems how OSW parks get adopted in their environment. Therefore, the case study research design is a limited approach that might fail to address the high individuality that lies within any other case of OSW adoption. However, the insights of the case study can be useful as a guideline for future researchers who want to study the adoption of OSW park projects.

The author of this thesis used qualitative interviews as a primary data source. According to Bell et al. (2019), the lack of naturalism is one of the disadvantages of qualitative interviewing. In order to minimise this effect, the author decided to use a semi-structured interview approach. The semi-structured interviews gave the interviewee enough space to answer the question in a natural setting but also provided the interviewer with a high degree of flexibility. This flexibility is a significant advantage for the interviewer because questions can be skipped if they were answered beforehand. Therefore, the interviewer ensures effective use of time and prevents the interviewer from asking the same or similar questions for a second time. However, even if semi-structured interviews offer an open framework, it must be mentioned that they follow a given structure based on the interview guide. Therefore, Bell et al. (2019) underline that the interviewees know that they are being studied during the interviews. This affects the use of language, and thus, an interviewee could use significantly different language in an interview compared to a spontaneous conversation with a friend. However, qualitative interviews have the

general advantage that they can unveil insights that cannot be observed, which helps to reconstruct complex events (Bell et al. (2019).

The case study approach of this research project only has a limited degree of representability for other OSW park cases in Sweden and other countries. The semi-structured interviews offer the author a suitable method to collect primary data and investigate the case project in a natural conversation with the interviewees.

4. Empirical case study and Analysis

Firstly, the empirics chapter introduces the selected OSW park case. The OSW park is planned to be constructed in the Swedish territory of the Baltic Sea. This specific project forms the unit of analysis for this study, as described in the previous method section. Secondly, the analysis chapter highlights the data analysis of the collected data. Thirdly, the author summarises the results of the conducted analysis in a separate chapter at the end of this section.

4.1 Empirical Context - The Baltic Offshore Delta

The author has chosen a large capital OSW project called the "Baltic Offshore Delta" for an in-depth case study investigation. This project is one of many large-scale OSW projects which are currently in the early planning stage in Sweden. The project has been chosen for the study because it was one of the OSW projects that created a loud echo in the media due to the high relevance for the capital city of Sweden and the large dimensions of the OSW project (Ritzén 2021).

4.1.1 Project Background

The developing company Njodr Offshore Wind is engaging in OSW adoption in Sweden. The company states that due to decreasing costs and fast technological developments, OSW has a high potential to be a renewable alternative to the ongoing nuclear operations in Sweden (Njordr Offshore Wind 2021). Moreover, the project is a chance for the County of Stockholm to become more energy-independent. The Swedish capital has ambitious plans to steer towards a fossil-free future by 2040; therefore, the OSW park could contribute to an environmentally-friendly energy mix (Stockholms Stad 2017). In a public consultation meeting, the developing company stated that the general energy demand would increase dramatically in the next 20 years in the County of Stockholm. The lead company that works on the project points out that Stockholm will undergo an electrification which will increase the electricity demand by 30% to 40% until 2040 (Njordr Offshore Wind 2021).

The project is located outside the Archipelago of Stockholm and within the Swedish economic zone in the Baltic Sea (see figure 7). The location is 55km outside of Sandhamn and has been carefully chosen due to different actors that share an interest in the sea territory. One of the main actors is the Swedish Armed Forces which holds a high defence interest in the region. The project plan is to install 253 wind turbines with a maximum height of 330m and a yearly energy production

capacity of 20TWh. Ritzén (2021) underlines that this would be the biggest offshore wind park in Sweden, with the capacity to substitute three nuclear reactors.

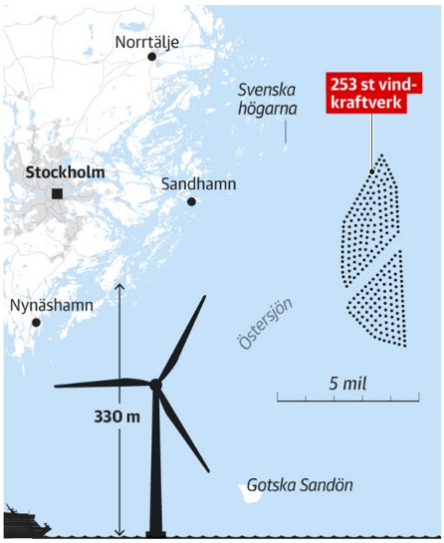

Figure 7. Location of the Baltic Offshore Delta in the Baltic Sea (Ritzén 2021)

4.1.2 Adopting OSW Parks in Sweden

In general, the project process of a large capital OSW project is subdivided into four different project stages. The expected project time can take up to 11 years (see figure 8). Therefore, OSW projects require huge investments and much time throughout the project process. The permitting stage is crucial for the entrepreneur since it requires a legal permit to construct an OSW park on Swedish waters. However, it is unclear throughout the process if the permit will be granted to the entrepreneur. If the legal requirements are not met, the entrepreneurial process to build an OSW park will halt. This means that the entrepreneur depends on the permit to reach the entrepreneurial objective of adopting OSW parks.

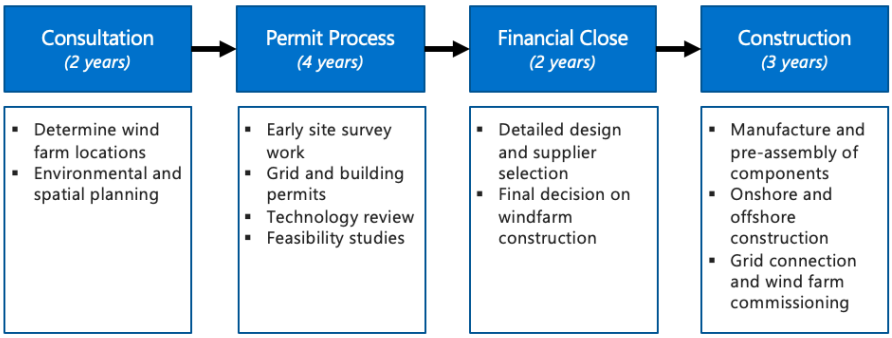

Figure 8. Full project process to build an OSW park (inspired by Wind Europe III 2019)

The developing company Njodr Offshore Wind informed that the Baltic Offshore Delta's application process was initiated in 2021. The company plans to hand in an official application for a construction permit in 2023 (Ecogain 2021). The Baltic Offshore Delta is currently in the consultation phase, which involves an open dialogue with actors affected by the OSW park (ibid.). So far, the company has handed in a consultation document including general information about the localisation, environmental effects and conflicting interests. The entire project duration from the beginning to the finished OSW park often takes many years in Sweden. The Swedish Wind Energy Association calculated that, on average, the entire permit process takes between 12,5 and 17,5 years in the Swedish context (Lina Kinning 2022). The handed-in consultation document entails that according to the preliminary project schedule, the construction of the OSW park will be finished earliest by the year 2032 (see figure 9).

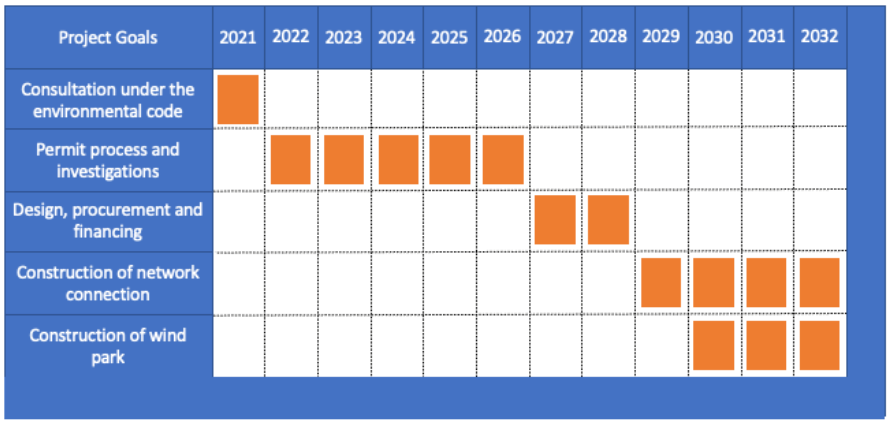

Figure 9. Preliminary project plan for the Balti Offshore Delta (inspired by Ecogain 2021)

4.2 Data Analysis

The following three chapters present the data analysis for this research. Firstly, the author elaborates on the complexity of the entrepreneurial process to adopt OSW on the Swedish sea. Secondly, the multi-actor perspective in large capital OSW park projects gets analysed. Thirdly, the investigation of the exercise of agency and the power of different actors influencing the entrepreneurial process is introduced to the reader.

4.2.1 The Entrepreneurial Process of Adopting an OSW park

The permitting process for OSW park projects such as the Baltic Offshore Delta was perceived as one of the main hindrances for entrepreneurs to adopt OSW parks in the Swedish sea. The permitting process can be complex and messy, involving a plurality of different actors. The high degree of complexity forms a barrier for the entrepreneur to adopt OSW parks due to a low degree of planning security.

However, the entrepreneurial risk is high from the beginning of the project process because OSW projects require the input of vast financial resources. The worst case from an entrepreneurial perspective is if the permitting process leads to no building permit because the invested capital would be lost, and years of entrepreneurial engagement would be in vain. Therefore, it is of the utmost importance for the entrepreneur to act as a risk minimiser to decrease the potential risk of project failure and to increase the overall planning security for the project. It needs to be mentioned that OSW park projects are typically dependent on large capital investors who carry the high costs that come with building the OSW park in the sea. Therefore, the entrepreneur aims to minimise the risk for the large capital investor beforehand. At a later stage, the investor joins the project when the risk is more predictable, or a building permit has already been granted. An OSW entrepreneur who currently engages in the permitting process of an OSW park in Sweden describes the status quo as the following:

> „The drawback is that it's an extremely complicated permitting process, with a lot of different authorities engaged, with a lot of different investigations that need to be done, with a very unpredictable decision making when it comes to getting a permit to start building.“ (Author: OSW entrepreneur)

The interviewed OSW entrepreneur highlighted that the permitting process's complexity makes the project process unpredictable from an entrepreneurial point of view. The interviewees working for Swedish state authorities emphasised that the permitting process for OSW park projects in Sweden differs significantly from other European countries. Most countries in Europe are using an auction system to regulate the permitting for OSW parks. OSW auctions are organised by the government and allow different companies to compete with each other to get a building permit. The company that offers the lowest bid receives the building permit in the sea and potential government subsidies for the park's construction (Kanumarath 2022). Sweden is following an "open door" permitting approach to handle OSW permits. The "open door" permitting system allows OSW companies to apply for a building permit from the government. Therefore, the entrepreneurs

can apply for OSW park projects at a location where other OSW park applications have already been handed in. In one of the interviews, a maritime spatial planner mentioned that the number of applications for OSW parks increased in the last years. This makes it difficult for the authorities to handle all the applications in time. The overload of work leads to long waiting times before the entrepreneur is getting a decision about the application. The high application numbers for permits form an organisational problem for national authorities, making it challenging to coordinate all the applications in time. The interviewed grid connection planner expressed frustration over the inefficiency and unpredictability of the Swedish permit system for OSW parks. Most interviewed authorities knew that Sweden's permitting process is messy because they regularly collaborate with other European countries for OSW projects. Therefore, they pointed out that the auction system can be beneficial, providing planning security for the entrepreneur and offering a lower workload for the authorities. Some interviewees perceived the reformation of the permit system in Sweden as a chance to make permitting for OSW parks in Sweden more efficient. However, critical voices also expressed that reforming the current system or the swap to an auction system would take too much time and could further delay the adoption of OSW in Sweden. However, from an entrepreneurial perspective, the auction system would help to make the permitting process more predictable, as the following quote shows:

> "The main difference is that there is an auctioning process in the rest of Europe which is more predictable. You know that you will get a permit and have the possibility to build if you do the things right." (Author: OSW entrepreneur)

The adoption of OSW in Sweden is highly connected to political decisions, which makes it complex. Political changes on the national level can make it more difficult for the entrepreneur to build the desired OSW park on the sea. The interviewed authorities and non-governmental organisation expressed a growing uncertainty due to changes in the ruling government during the 2022 government elections. The new government has communicated in a political statement to abolish the subsidies for the grid connection of OSW park projects in Sweden. Instead, the government is planning to focus on constructing new nuclear plants. According to the interviewed grid connection planner, the connection of an OSW park to the Swedish onshore grid can constitute 10% to 30% of the total investment costs. The grid connection is an essential investment for the entrepreneur because it allows the entrepreneur to transport the produced electricity to the shore to sell it on the electricity market. Therefore, abolishing subsidies for the grid connection might affect the construction of OSW park projects in the future since it is a significant part of the overall investment costs. The previous government assigned the National Grid Operator to build several OSW grid connection hubs on the Swedish coast. These projects might be in jeopardy if the ruling government decides to abolish the subsidies for OSW grid connections. Thus, a lack of political support could negatively affect the entrepreneurial process to adopt OSW park projects in Sweden, making it more challenging to succeed with projects such as the Baltic Offshore Delta.

4.2.2 Analysing OSW from a Multiple Actor Perspective

The government coordinates the permitting process for OSW park projects in the Swedish economic zone. The entrepreneur hands in the official application for the permit to the government. Afterwards, the government sends the application to a list of different actors. The entrepreneurial process to adopt an OSW park in Sweden includes many consultations. Therefore, the entrepreneur works in the early stage of the project as a project manager, investing large financial resources into the detailed planning of the park and managing different actors. The entrepreneur hires external consultancies to cope with the complexity of the permission process. These private consultancies play a central role in the project's early stage, supporting the entrepreneur in consultations and assessments. It becomes clear that the high actor involvement begins in the consultation phase, which is considered to be the earliest stage of the overall project process for an OSW park (see figure 8). Thus, the entrepreneur is challenged to engage with multiple actors. The following quote states how an entrepreneur of a large-scale OSW park perceives the multi-actor perspective in Sweden:

> "To get to the stage where we can submit an application to the authority, we have to have consultations with about 80 different stakeholder organisations. And that being said it's everything from different kinds of fishery organisations, environmental organisations, birdwatcher organisations, and the general public. There are a lot of actors that we need to interact with, to get to the stage where we can even start the environmental study." (Author: OSW Entrepreneur)

The high actor plurality in large-scale OSW projects is expressed in connection to the project process and to Sweden's maritime spatial planning. The Swedish government has commissioned the Energy Agency with an assignment to coordinate the search for additional OSW areas in the Swedish sea. Localising an OSW park is crucial for the entrepreneur as one of the key factors to successfully adopting OSW. The maritime spatial planning in Sweden is not directly linked to the permitting process. However, it provides the entrepreneur guidance in choosing a well-fitting location for the OSW project. Therefore, the involvement of essential actors (e.g. Armed Forces) in this new government assignment is already relevant because this could minimise the risk that the selected location collides with different interests. Maritime spatial planning is thus a suitable example that symbolises that multiple actor relations dominate the adoption of OSW projects even before the entrepreneurial process begins.

The permitting process for an OSW park involves many actors, leading to conflicts of interest. The framing of different interviewees unveiled that the entrepreneur is managing a project environment with high conflict potential. As an early-stage developer, the entrepreneur is aware that the complex scale of OSW park projects can collide with different interests. Thus, the entrepreneur must manage those conflicts of interest during the project process.

The case project is planned in the economic zone of the Swedish sea territory to minimise the risk of conflict with municipalities because it is built far out in the sea. However, even if the OSW park is situated far out in the sea, it does not mean that the entrepreneur is not facing conflicts of interest as with nature conservation. Many different species are situated in the sea that need to be protected from harmful

effects caused by big OSW park projects. In one of the interviews, a marine biologist highlighted that various sea species could be affected by OSW park projects such as harbour porpoises. The researcher underlines that especially the construction phase of OSW parks is critical since many high noise levels can disturb the animals in the sea. These conflicts of interest need to be considered by the entrepreneur in the earliest planning stage of the project. Thus, the entrepreneur interacts with critical actors intending to solve conflicts of interest in the permitting stage. The interviewed marine biologist describes a situation of conflict between the OSW entrepreneur and the interests of nature conservation in the following quote:

> "We tried to put those constraints. We had one case where we mentioned that this time period is not suitable for the construction and it was ignored. Then we said it again, and it was ignored. Then we said quite clearly that we would like to have an argument of why the company thinks it needs to be done in this period because we have expressed that we think it's not a good time of the year to do this." (Author: Marine biologist)

4.2.3 Analysing the Influence of Agency in OSW Projects

The data showed that actors influence the entrepreneurial process to adopt OSW park projects in the Baltic Sea. These actors use agency to affect the entrepreneurial adoption process for OSW parks in Sweden. The following chapter presents the findings regarding the exercise of agency of involved actors.

Using Agency to Support…

Most investigated actors use their agency to support the entrepreneurial process to adopt OSW parks in Sweden. The interviewed state authorities emphasised that OSW projects, such as the Baltic Offshore Delta, are a central pillar of the ongoing energy transition. Therefore, state authorities involved in adopting OSW support this transition towards more sustainable energy production to mitigate the effects of climate change. The grid connection planner mentioned that the energy demand in Sweden will dramatically increase in the next 20 years. The energy demand is caused by the intensive electrification of society and the future use of hydrogen to produce green industrial goods in Sweden. The environmental investigator explained that working for a state authority with OSW permits shows how they support the entrepreneurial process to adopt OSW in Sweden with their daily work. The interviewed innovation planner gave another example that their work on behalf of a state authority with maritime spatial planning supports the entrepreneurial process in the long run. Thus, maritime spatial planning supports the entrepreneur and helps to plan the park in a sea territory with low conflict potential. This helps the OSW entrepreneur to save resources during the adoption process because the most critical actors have already agreed on the location.

The interviewed innovation planner perceived a general interest in adopting OSW on Swedish sea territory to match the rising energy demand in the future. The potentials for OSW in Sweden were evaluated as promising, with vast sea territories compared to other European countries. The framing of support has often been used in connection to the ongoing energy crisis in Europe. The war in Ukraine showed how energy-dependent Europe is and that higher energy independence could foster

a stable and robust national energy system in Sweden. The innovation planner working for a Swedish state authority explained that the general support for OSW adoption has increased since the energy situation in Europe shifted:

> "Previously, we had to convince everybody about this position that we need a lot of new electricity production. That was not that obvious for everybody. But this year it's obvious for everybody why we have to do this and why it's important. I think the agencies understand very well why we need offshore wind energy." (Author: Innovation planner)

As stated in the previous chapter, OSW park projects have a high conflict potential due to the number of involved actors. Therefore, using agency to support also means exploring possible solutions in a conflicting project environment. This is an essential step for the entrepreneur to overcome barriers and hindrances. The framing around solutions has often been communicated in context with potential technical solutions that mitigate the negative influence of OSW adoption. In the case of nature conservation, technical mitigation measures have become a standard in the building phase of an OSW park. Since the building phase is the most critical phase for the surrounding marine life, hydro sound dampers and bubble curtains are required during the construction phase. These technical measures lower noise and protect marine animals (e.g. harbour porpoises). Other technical measures were expressed to find ways to coexist with the Armed Forces. One argument from the Armed Forces is that OSW parks would disturb the functionality of existing radar systems on the sea. However, a defence researcher presented different examples in the interview from other European countries, such as Great Britain and Germany, which have found suitable radar solutions for OSW parks. Their work as a Defence Research Institute supports the entrepreneurial process by exploring suitable radar systems that could be used for OSW parks to ensure coexistence with the Armed Forces.

The OSW entrepreneur and the innovation planner mentioned that adopting floating wind turbines could help to overcome barriers with other actors. Conventional OSW operations with bottom-fixed turbines are limited to shallow sea waters. They can only be built to a specific sea depth of approximately 60m. This is a significant limitation to adopting OSW parks in Sweden because most of the sea territory in the economic zone is located in deeper sea waters. Floating wind turbines are mounted on a floating platform in the sea, connected with ropes to the sea bottom. The lead company planning the case project announced that floating turbines would play an essential role in the case project since most of the areas are deeper than 60m. The interviewed OSW entrepreneur emphasised that floating wind turbines are beneficial because their energy output is significantly higher. Floating wind turbines can be installed very far out in the sea, where the wind speeds are higher than in sea territories close to the shore. Moreover, the OSW entrepreneur elaborates that they are mainly focusing on a blue economy approach, as described in the following quote:

> "It's more or less a biorefineries that we're building. And that means that we will produce e-fuels if it is possible but this has still to be explored in Sweden. We also look at alternative use of the space by looking at the possibility of establishing seaweed farms in the wind parks. That means that we take a long term responsibility for the total lifecycle of the whole park." (Author: OSW entrepreneur)

Using Agency to Collaborate…

The collected data revealed that some actors use their agency to collaborate with others. Collaboration with other actors is crucial for the entrepreneur who faces a permitting process with high conflict potential. Thus, the entrepreneur takes over the role of a collaborator throughout the project process. Since a lot of different permits are needed for the building permit for an OSW park project, the entrepreneur has to collaborate with other actors that are involved in the permitting process. Therefore, the entrepreneur interacts with a long list of actors working on different subjects, such as nature conservation or grid connection.

The collaboration among actors can be observed between state authorities and research institutes since the entrepreneur is handing in an application to the government for an OSW park in the economic zone. The application gets then distributed through a formal process to other actors. The interviewed Marine Biologist advises the government on nature conservation issues related to OSW park adoption. This is one empirical example of close collaboration between a state authority and a research institution. Another example is the collaboration between the Energy Agency and the Armed Forces within a research assignment to explore the possibilities of coexistence between OSW parks and the Armed Forces in Sweden. The results were published in a comprehensive report by the Defence Research Institute and handed over to the Armed Forces with concrete suggestions on solving potential conflict areas.

Using Agency to Communicate…

Actors emphasised that they use their agency to communicate with each other during the adoption process of OSW parks in Sweden. This active dialogue is an important tool for the entrepreneur investigating potential solutions in conflicting areas of interest. A practical example is the OSW council, which was mentioned during the interview with the OSW industry coordinator and the grid connection planner. The OSW council is organised on behalf of the Swedish Wind Energy Association members to support wind energy expansion in Sweden. The OSW council initiates a dialogue by inviting different actors (e.g. OSW entrepreneurs, Swedish National Grid Operator) to the council to discuss the latest developments regarding wind energy in Sweden. The platform allows the entrepreneur to initiate dialogue with decisive authorities involved in the permitting process.

Another example could be observed in the case project where the Baltic Offshore Delta project team initiated a comprehensive dialogue with actors that were indirectly involved in the permitting process. The project developers organised an open information event inviting the general public to inform about the OSW project. During the meeting, the project team informed the listeners about the Baltic Offshore Delta, leaving room for questions and open discussions. This example shows that OSW entrepreneurs try to take the extra effort to get into dialogue with actors that are not directly influencing the entrepreneurial process.

The engagement to spark dialogue can be limited during the entrepreneurial process to adopt OSW parks in Sweden. In particular, entrepreneurs and industry representatives perceived the dialogue with the Armed Forces as challenging. In the case project, the Armed Forces form a decisive actor, according to the project developers. The interviewed OSW entrepreneur underlined that the communication

between the Armed Forces and entrepreneurial actors could be more extensive. The Armed Forces mainly stay in contact with other state authorities, for example, the Energy Agency. The defence researcher stated that the primary reason for this lack of dialogue is the high confidentiality of military information and the lack of labor resources. The low level of communication makes it increasingly difficult to explore possible solutions that the OSW entrepreneur could implement to meet the needs of the Armed Forces. The defence researcher explained in the interview that Sweden is not offering any formats for open dialogues between the Armed Forces and OSW entrepreneurs:

> "It seems that the Armed Forces in other countries have a higher possibility to have a direct dialogue with companies and to implement adjustments or solutions that companies can build wind powers and the armed forces are still okay with that." (Author: Defence Researcher)

Nevertheless, the defence researcher mentioned that the entrepreneur can ask the Armed Forces for a preliminary judgement during the permitting process. The judgement allows the OSW entrepreneur to get an evaluation from the military if the project collides with their interests. However, it needs to be emphasised that this is only a preliminary judgement, and the Armed Forces can change their opinion later in the project process. The Defence Research Institute presented the suggestion to establish a national wind task force for Sweden in the future. This platform could improve the possibility of dialogue between the Armed Forces and OSW entrepreneurs in Sweden to find solutions for conflicting interests.

4.2.4 Analysing Power Relations and Dynamics

This chapter presents the findings of prevailing power relations and dynamics between actors influencing the entrepreneurial process to adopt OSW parks in Sweden. The analysis showed that all three categories of power relations (see chapter 2.4.2) could be observed during the adoption of the case project. The power categories are "power over", "more/less power to", and "different power to" (Avelino 2017). These different power relations led to observing different power dynamics that shape the entrepreneurial process.

Prevailing Power Relations and Dynamics

This study detected power relations between the OSW entrepreneur and other actors dominated by the "power over". This type of power relation showed one-sided power dynamics between the OSW entrepreneur and other actors. A one-sided power dynamic could be observed, especially during the permitting process for OSW parks limiting the degree of power for the OSW entrepreneur. The permitting process depends on the consent of a lot of different actors. Hence, the entrepreneur is experiencing a high dependency on the action of other actors because other actors will take the final decision for the permit. The entrepreneur's power during the permitting process is lower than other involved actors that exercise their power over the OSW entrepreneur. The OSW entrepreneur gains power once the building permit for the OSW park is granted, which forms a significant milestone during the entrepreneurial process of OSW park adoption in Sweden.

Nevertheless, during the permitting process, the OSW entrepreneur has to use the low power level to fulfil the permitting process requirements. The OSW entrepreneur in the case project depends mainly on the government and the Armed Forces to get the building permit. The government, for instance, has the power to take the final decision for the case project in the economic zone. The municipalities and the County Administrative Board would become influential actors if the OSW park would be planned close to the shore in the territorial sea. The interviewed maritime planning coordinator underlined that, in this case, the municipalities would have the legal right to influence the project and even block the project process with an exclusive veto right.

In addition, the OSW entrepreneur faces a one-sided power dynamic in the case project with the Armed Forces. The Armed Forces can block OSW park projects in the economic zone when they see the national defence in danger. However, the defence researcher mentioned that the Armed Forces need to present a valid reason for blocking an OSW park project. Generally, it needs to be emphasised that the defence interests is legally anchored as the highest interest in Swedish law. The government will therefore take the recommendations of the Armed Forces seriously if it comes to a final decision for an OSW park. The interviewed maritime planning coordinator explained furthermore that, especially now with the tense security situation in Europe, concerns of the Armed Forces for national security would have a high weight:

> "I guess it depends on the political situation. I believe if one area for the OSW park would be very unsuitable due to the Swedish defence strategy against foreign forces, it would be very powerful for the government at the moment." (Author: Maritime coordination planner)

Moreover, the analysis showed prevailing power relations with actors exercising "more/less power to" during the entrepreneurial process to adopt OSW in Sweden. The author found cooperating power dynamics between the OSW entrepreneur and different environmental authorities. In the case project, some of the examined environmental authorities have more power than the entrepreneur to influence the permitting process. Nevertheless, the entrepreneur is using the lower degree of power to engage in the permitting process trying to meet the demands for nature conservation. The cooperative power dynamic between the OSW entrepreneur and environmental authorities is an ideal example of how different actors use their power in a cooperative way to work jointly towards a collective goal. The interviewed marine biologist and environmental investigator stated that the environmental authorities are willing to cooperate with the OSW entrepreneur to adopt more OSW parks in Sweden. They mentioned that adopting more renewable energies is vital from an environmental perspective. The ongoing energy transition towards renewable energies could contribute to future environmental protection. Therefore, environmental authorities are using their power to cooperate with the OSW entrepreneur working towards the collective goal of adopting more renewable energy in Sweden.

Similarly, cooperative power dynamics could be observed between the OSW entrepreneur and the National Grid Operator. The National Grid operator has to connect any large-scale OSW project to the Swedish national grid. The interviewed grid connection planner emphasised that the state authority is interested in

connecting more OSW parks to the Swedish national grid, mentioning that it needs more energy production to meet the increasing energy demand in the future. Therefore, the National Grid Operator is using power to cooperate with the OSW entrepreneur to increase the overall energy production in Sweden. The grid connection planner explains the cooperation with the OSW entrepreneur in the following quote:

> "We have five large wind farms that we have capacity reservations for. These capacity reservations are for connections to onshore grid connection points meaning that the OSW companies are paying themselves for the sea cables. These studies are going well and the product promoters seem to have decided that they are going to complete their projects and investment to connect them to the grid. For the time being, we're doing our very best to support these offshore wind project developments and make these studies and these projects as efficient as we possibly can." (Author: Grid connection planner)

The last power relation category ("different power to") creates synergies and could be found between the OSW entrepreneur and the Swedish Wind Energy Association. The non-governmental organisation uses different powers to create synergies with the OSW entrepreneur. As presented in the previous chapter, the Swedish Wind Energy Association established the OSW council, a platform for dialogue between different industry actors and authorities. In the council participate state authorities such as the National Grid Operator. This allows the OSW entrepreneur to discuss issues and conflicts directly with relevant actors. The interviewed OSW coordination planner elaborated that the OSW council gathers approximately 70 actors influencing the entrepreneurial process. The Swedish Wind Energy Association is not directly involved in the permitting process, but they use different powers to create synergies with the OSW entrepreneur throughout the challenging project process.

4.3 Results

The results chapter summarises the key findings of this research project. Firstly, the author conceptualises the entrepreneurial process to adopt OSW parks in Sweden based on the findings. Secondly, the additional subchapters organise the key findings in tables, giving the reader a comprehensive overview of the results.

4.3.1 Conceptualising the Entrepreneurial Process

The conceptualisation (see figure 10) has been developed based on the findings revealed during the analysis of the collected data. The centre of the figure forms the entrepreneurial process itself. The actors identified in the multiple-actor analysis were allocated to four different actor constituencies. The conceptualisation provides examples to the reader of which identified actors are part of a specific actor constituency. The analysis chapter showed furthermore that different actors are using their agency and power to influence the entrepreneurial process to adopt OSW in Sweden. The actors exercising agency and power among each other, which is visualised through dotted arrows between the different actors and the entrepreneurial process.

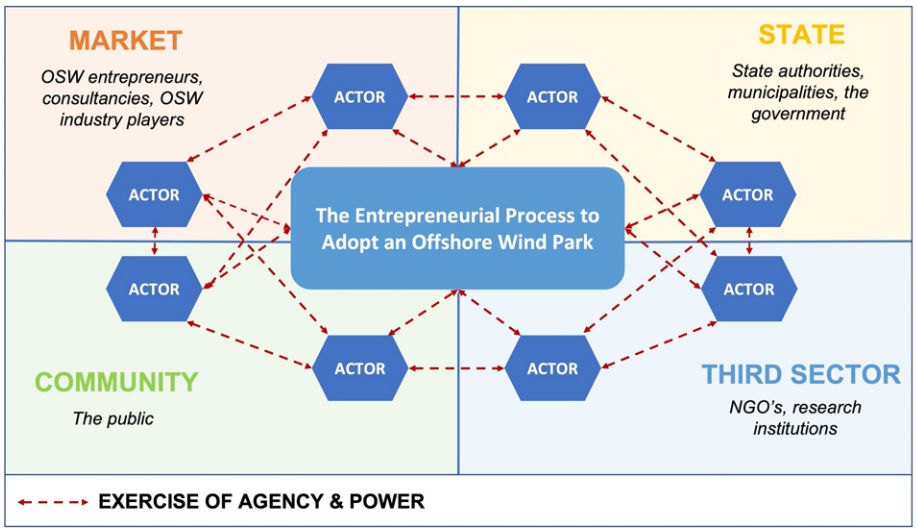

Figure 10. The entrpreneurial process to adopt an OSW park in Sweden (own illustration)

4.3.2 Allocating the Actors to Constituencies

The analysis of the entrepreneurial process from a multiple-actor perspective identified several actors influencing the entrepreneurial process to adopt OSW parks in Sweden. It became apparent during the research that the group of identified actors is diverse, having different roles in the permitting process. The identified actors have been allocated to different actor constituencies to organise them coherently. The actor constituencies are based on the MAP introduced in the theoretical approach chapter (see chapter 2.4.1). This helps the reader to get a structured overview of the different groups of actors. In the following table, all the identified actors of this study have been listed:

Table 5. Summary of identified actors allocated to actor constituencies

Actor Constituencies	Identified Actors
State	The Swedish Government The Swedish Armed Forces The County Administrative Boards The Swedish Agency for Marine and Water Management The Swedish National Grid Operator The Swedish Energy Agency
Market	OSW entrepreneurs Private consultancies OSW industry players Large capital investors
Community	The general public
Third Sector	Maritime Research Institute Defence Research Institute The Swedish Wind Energy Agency

4.3.3 Different Modes of Agency

The analysis of how actors exercise agency showed that actors use different modes of agency to influence the entrepreneurial process to adopt OSW parks in Sweden. The actors use support, collaboration, and communication as modes of agency. The modes of the agency were organised in a table, providing the reader with an overview and empirical examples:

Table 6. Summary of modes of agency influencing the entrepreneurial process

Modes of Agency	Examples of exercising agency
Support	State authorities are working on a government assignment with maritime spatial planning to search for suitable OSW areas in the sea. OSW entrepreneurs explore concepts to adapt OSW in a new way to mitigate the effect on other actors (e.g. floating wind turbines / blue economy approach).
Collaboration	The government collaborates with a maritime research institute during the permitting process. The maritime research institute advises the government in terms of nature conservation. The Energy Agency and the Armed Forces gave the Defence Research Institute the assignment to investigate the coexistence between OSW parks and military interests. The results were summarised in a report.

Communication	The Swedish Wind Energy Association's offshore wind council offers a platform to communicate with different actors involved in the adoption of OSW. The lead company of the case project created an open information event for the general public to inform about the OSW case project.

4.3.4 Prevailing Power Relations and Dynamics

The analysis of power dynamics showed how various forms of power relations influence the entrepreneurial process. A one-sided dependency characterises the power relation between the OSW entrepreneur and the Armed Forces. This type of power relation between the OSW entrepreneur and more powerful actors (e.g. Armed Forces) was found to be critical during the permitting process. Given the nature of gaining a permit, most actors exercise power over the entrepreneur during the permitting process, and the OSW entrepreneur experiences a one-sided power dependency. The findings regarding power relations and dynamics have been summarised for the reader in the following table:

Table 7. Summary of power relation and dynamics influencing the entrepreneurial process

Power relations	Power dynamic	Example
Power over....	One-sided dependence	The OSW entrepreneur depends to a high degree on other actors to get a building permit. The Armed Forces and the government can block the application for an OSW building permit.
More/less power to....	Cooperation	Environmental authorities and the OSW entrepreneur are using more/less power to cooperate with the collective goal to increase the share of renewable energies in Sweden. The National Grid Operator and the OSW entrepreneur are using more/less power to cooperate with the collective goal to increase energy production in Sweden.
Different power to....	Synergy	The Swedish Wind Energy Association and the OSW entrepreneur are using their different power to create synergies (e.g. OSW council)

5. Discussion

This thesis aims to investigate the entrepreneurial process to adopt OSW parks on the Swedish sea from a governance perspective. The objective was to contribute to a better understanding of the role of the entrepreneur due to a need for more research addressing the entrepreneurial perspective in adopting OSW parks in Sweden. The following subchapter will discuss the key findings of this thesis.

5.1 Multiple Actors Influencing the Entrepreneurial Process of Adopting OSW

The existing literature insufficiently addresses the role of the entrepreneur in OSW park projects in Sweden, with only a few studies investigating the adoption of OSW parks in the Swedish context (Söderholm 2011; Waldo 2012; Hultman et al. 2022). The study of Waldo (2012) focuses on different areas of conflict that are part of the adoption process of OSW parks in Sweden. Nevertheless, the literature does not review the adoption process of OSW parks in Sweden from a governance perspective. Hence, this thesis begins to address this knowledge gap, contributing to a better understanding of the entrepreneurial process to adopt OSW parks in Sweden. The key findings of this research provide practical insights for researchers to study OSW park projects in Sweden or large capital projects in other countries.

The first research question aimed to identify relevant actors influencing the entrepreneurial process to adopt OSW parks in Sweden. This research identified several actors influencing the entrepreneurial process to adopt OSW park projects, such as the Baltic Offshore Delta in the Swedish sea. The analysis of the case project from a governance perspective showed that the dynamic interplay between actors is complex due to a plurality of involved actors. The allocation of actors to different actor constituencies was thus a necessary step to cope with the complexity of actors in the case project. This observation aligns with the article of Macalister (2004), who wrote about the complexity of adopting renewable energies in the countryside. The adoption of OSW parks in Sweden is an adequate empirical example showing the complex reality of large capital projects led by entrepreneurs. The adoption process for OSW parks is not only linked to the desire of the OSW entrepreneur to build the OSW park. Therefore, the adoption process for OSW parks involves interaction with many different actors, making it complex or messy, as noted by Beveridge and Guy (2005).

The dominating view of innovation provides a tidy framework to understand innovation processes (e.g. LM of innovation or MLP). However, Balconi et al. (2010) criticised the LM of innovation because it is too simple and does not

acknowledge the complexity of innovation. Thus, applying the LM of innovation to steer the adoption of OSW parks in Sweden is tricky because the model does not address the context in which innovations are adopted. In the field of renewable energies (e.g. OSW parks), it is crucial to consider that they are adopted in a contested project environment in which OSW entrepreneurs are by far not the only key actors. This finding contradicts with the view of Joly (2017), who argued that the entrepreneur is the main force behind the innovation process, referring to the LM of innovation. The findings of this research show that this simplistic view in the case of OSW park adoption does not match real-world conditions. The need for acknowledging innovation in context can also be observed within the MLP, which provides a multidimensional innovation model to analyse the dynamic interplay of actors between multiple dimensions (e.g. niche, landscape, and regime). However, the MLP says little about the geographical context where innovations are adopted. The geographical context is vital in OSW park projects because it influences the overall entrepreneurial process. Thus, this thesis acknowledges that it is necessary to understand the context, such as geographical location and its inherent social dynamics, that shape the adoption of renewable energies.

The second research question focused partly on how the exercise of agency influences the entrepreneurial process of adopting OSW in Sweden. The analysis of agency showed that the identified actors are using different modes of agency to shape the entrepreneurial process. Some actors influence the adoption of OSW by supporting the entrepreneurial objectives of adopting OSW parks in Sweden. The actors envisioned OSW as a central pillar to transform the Swedish energy system towards more renewable energies. The current energy crisis was perceived as a primary driver in increasing the share of renewables in Sweden. In the MLP innovation model from Geels (2020), would this development be classified as landscape pressure on the regime (e.g. fear of climate change and dependency on fossil fuels) that opens up windows of opportunities to adopt renewable energies.

Interestingly, the analysis showed that OSW park projects are carried out on a regional level with overarching national policy systems influencing them (e.g. permit systems). Thus, the OSW entrepreneur is forced to move between the national and regional dimensions back and forth to adopt an OSW park in Sweden. Implementing an auction system in Sweden, which some interviewees have advertised as the better system solution, would shift the responsibilities mainly to the national level. The analysis showed that introducing an auction system would help the OSW entrepreneur in many ways. The auction system would increase the predictability of the entrepreneurial process because state actors and the government approve a well-fitting location for the OSW park beforehand.

5.2 How Actors Exercise Power to Influence the Adoption of OSW

As part of the second research question, this study analysed prevailing power relations between actors that influence the adoption of the OSW park. The permit system creates a particular power relation between the entrepreneur and actors whose support is needed to gain a permit. The case study showed that the OSW entrepreneur experiences a form of power relation during the permitting process where actors exercise "power over ". This power relation creates power dynamics which are dominated by a one-sided dependency. Therefore, the OSW entrepreneur depends on other actors to succeed with the permitting process and to get a building permit for the OSW park.

The actors that have much power in the permitting process can decide over the permit. Thus, the OSW entrepreneur tries to fulfil the requirements for the permitting process to win everyone's support. The author of this thesis admits that it was a surprise how unexpected actors, such as the Armed Forces, popped up during the analysis of the case project. The Armed Forces were an unexpected actor with much power over the OSW entrepreneur. However, the OSW entrepreneur is struggling to cooperate with the Armed Forces because military information is confidential, and the entrepreneur has little experience dealing with unexpected actors such as the Armed Forces. The lack of collaboration is a problem because, during the permitting process, the OSW entrepreneur must win the support of all-powerful actors (e.g. Armed Forces). This forms a critical challenge for large capital projects led by entrepreneurs because they need to gain support from actors to whom they have limited access.

However, adopting OSW parks in Sweden is a significant source of conflict between the Armed Forces and the OSW entrepreneur. The fact that the Armed Forces have the power to stop an OSW park project makes the OSW entrepreneur very vulnerable and dependent. Nevertheless, it must be mentioned that the OSW entrepreneur focuses on key actors with more power (e.g. Armed Forces and the Swedish government). These are the most influential actors with the legal ability to block the entrepreneurial process with their exclusive veto rights.

The exercise of power to work towards a common goal showed how actors use "more/less power" to support each other. In this case, the common goal is to adopt OSW parks in Sweden, accelerating the energy system's transition towards more renewable energies. The collective goal of the energy transition motivated certain actors to use their power to cooperate with the OSW entrepreneur. The literature review on the MLP showed that it is expected that the entrepreneur needs to cope with barriers and hindrances during the innovation processes (Long et al. (2019). Therefore, it was a surprise for the author of this thesis that the exercise of power was used to build bridges working jointly towards a common goal.

5.3 Critical Reflection on Research Implications and Limitations

Insights gained from this case study provide a well-fitting framework for understanding the entrepreneurial process of planning the adoption of OSW park (see Figure 10). While this framework can assist in analysing future studies on entrepreneurial processes associated with large capital projects, it must be emphasised that this thesis contains various limitations that the reader must consider.

One of the most significant limitations comes with the selected sample group. This specific selection of actors was based on a purposive sampling approach and the researcher's evaluation of which actors could influence the entrepreneurial process. As one of the interviewed OSW entrepreneurs mentioned, the list contains up to 80 actors involved in the entrepreneurial process to adopt OSW parks in Sweden. Hence, this project focuses only on a selection of involved actors due to time and resource limitations. Therefore, the generalisability of this study is a limiting factor because the selected sample group only represents a minor part of the entire group of actors.

Furthermore, the author could not collect primary data through qualitative interviews with all actors of the sample group. The government and the Armed Forces were selected for the sample group, but the author could not get interviews with both actors during the data collection. Therefore, the findings concerning certain actors are not based on insights from qualitative interviews with the actor themselves. Moreover, the author tried to compensate for the missing interviews with insights from other interviews with actors who share a connection with these actors. In the case of the Armed Forces, the Defence Research Institute was interviewed, which advises the military on OSW park issues. In addition, secondary data has been used to increase the overall validity and generalisability.

Lastly, the author wants to emphasise that researchers must be aware that this study only depicts the picture of one case in the Swedish context. As we learned in the discussion, context is key, and other OSW park projects, even in Sweden, might differ from the studied case. Therefore, the specific case's individuality needs to be considered for future research on OSW park projects. Sweden has a significantly different permitting process for OSW parks than other European countries. Therefore, it can be discussed if the insights collected in the context of the Swedish permit system can be applied to other systems (permit system vs auction system).

6. Conclusion

The research aim of this study is to contribute to the understanding of the entrepreneurial process of adopting OSW parks in Sweden. Therefore, the author of this thesis developed a framework to investigate and make sense of the entrepreneurial process of adopting an OSW park. The framework was tested in a case study on a Swedish OSW park project currently in the planning stage. The theoretical approach for building the framework is based on a governance perspective on the entrepreneurial process. Following this perspective, the entrepreneurial process to adopt OSW is not steered by a single key actor but involves a dynamic interplay of multiple actors.

One of the key findings of this research project was that models with predefined processes (e.g. LM of innovation or MLP) or assumptions about predefined power dynamics (e.g. stakeholder theory) overlook the real-world context in which entrepreneurial projects (e.g. OSW parks) are adopted. More specifically, the linear model of innovation overlooks the actual context of an innovation process. The application of critical social science (e.g. governance perspective) was helpful in this study to create a deeper understanding of context. This analytical insight is relevant for the disciplines of entrepreneurship and business studies because a governance perspective can help to research entrepreneurial and business projects to understand how these develop in a particular context.

However, theoretical frameworks are still helpful in understanding the context. For example, in the logic of the MLP, it can be concluded that the permit system represents a prevailing regime for adopting OSW parks in Sweden. This insight is an essential conclusion for policymakers and industry actors because the permit system is steering the adoption of OSW in Sweden and governs the general uptake of OSW on a national level. The permit system shapes the power relations between the entrepreneurial actor and other actors that influence the adoption of OSW. The auction system, which is more common in other European countries, is a different way to regulate and organise the adoption of OSW parks. Implementing an auction system in Sweden would change the entrepreneurial process to adopt OSW significantly regarding power relations and dynamics. Both the permit regime and the auction regime have advantages and disadvantages. The permit regime, for instance, restricts the entrepreneurial process on the one hand (top-down) and simultaneously requires the OSW entrepreneur to gain support from other actors (bottom-up). The findings show that the auction regime would provide the OSW entrepreneur with a much faster project process to get a building permit and a higher degree of predictability. Generally, the successful adoption of OSW in the permit system depends on the willingness of involved actors to support the OSW entrepreneur throughout the permitting process. In contrast, the auction system depends primarily on the government's support.

During the project process, the OSW entrepreneur must gain support from different actors in the permit regime to adopt an OSW park in Sweden successfully. Renewable energy projects (e.g. OSW park) involve a plurality of actors with other interests and priorities. The identified actors in the case project were allocated to different actor constituencies (market, state, community, and third sector). The findings of this study show that the actors are using their agency and power to influence the entrepreneurial process to adopt OSW parks in Sweden. In the case project, the actors influenced the entrepreneurial process by supporting (e.g. maritime spatial planning), collaborating (e.g. collaboration in permitting process), and communicating (e.g. OSW council).

The key findings of this study led to a conceptualisation of the entrepreneurial process to adopt an OSW park in Sweden (see figure 10). The conceptualisation is the major contribution to the existing literature and the field of business studies. The chosen case study research design allowed the author to investigate an OSW park project on the Swedish sea, which is currently in planning. This study concludes that generic frameworks, such as the linear innovation model, overlook the complex nature of an innovation process. Theoretical frameworks that are more sensitive to context are needed. The conceptualisation of the entrepreneurial process developed from this case study provides a suitable framework for studying other OSW cases or large capital projects led by entrepreneurs.

However, as described in the previous discussion chapter, such studies must consider the unique contextual nature of the studied cases. The case study approach helped the author to collect data on the actual and practical realities of an OSW project in Sweden. For the researcher, it was a great way to dive deeper into the topic and investigate the entrepreneurial process of an ongoing OSW park project. The analysis of the case project from a governance perspective using qualitative research methods showed that the dynamic interplay among actors is complex. The author expected the case project would have a high degree of complexity. However, the research showed that the dynamic interplay among actors in OSW park projects is even more complex than the author expected. The plurality of actors identified during the research process forced the author to accept research limitations. Hence, the study only depicts a selection of the most relevant actors that could be identified. Therefore, the insights of this thesis are based on only some actors that actively influence the entrepreneurial process because investigating all actors would exceed the boundaries of this research project.

6.1 Recommendations for Future Research

The insights of this study lead to recommendations for future research. The focus of this study was to better understand the adoption process of OSW in Sweden from an entrepreneurial perspective. Hence, future researchers could analyse the OSW adoption process from another actor perspective than the entrepreneurial (e.g. Armed Forces). This could increase the understanding of powerful actors influencing the entrepreneurial process to adopt OSW parks in Sweden. The focus on specific actor groups could also be used for future research to investigate the role of actors that are not directly involved in the adoption process of OSW (e.g. the public).

Furthermore, it could be interesting for future researchers to analyse the entrepreneurial process of adopting an OSW park in other European countries. Other European countries are using a fundamentally different permit regime to adopt OSW parks (e.g. auction regime). Future researchers could compare the permit regime and auction regime with each other investigating the influence on the entrepreneurial process to adopt OSW.

The qualitative research for this thesis showed that OSW projects, such as the case project, are very complex. This study depicts, therefore, only a selected group of actors. Thus, other involved actors influencing the entrepreneurial process to adopt OSW parks in Sweden must be thematised. Therefore, the author recommends that future research could investigate the role of other actors that are not covered by the sample group of this study (e.g. private consultancies or large capital investors). The author thinks that students who intend to study an ongoing OSW park project should know that the expectation to cover all involved actors is not feasible in a single study. The complexity of large capital OSW park projects is too big. Hence, the author recommends focusing on a group or selection of actors.

References

Avelino, F. (2011). *Power in Transition: Empowering Discourses on Sustainability Transitions*. Erasmus University Rotterdam. https://repub.eur.nl/pub/30663/

Avelino, F. (2017). Power in Sustainability Transitions: Analysing power and (dis)empowerment in transformative change towards sustainability: Power in Sustainability Transitions. *Environmental Policy and Governance*, 27 (6), 505–520. https://doi.org/10.1002/eet.1777

Avelino, F. (2021). Theories of power and social change. Power contestations and their implications for research on social change and innovation. *Journal of Political Power*, 14 (3), 425–448. https://doi.org/10.1080/2158379X.2021.1875307

Avelino, F. & Rotmans, J. (2011). A dynamic conceptualization of power for sustainability research. *Journal of Cleaner Production*, 19 (8), 796–804. https://doi.org/10.1016/j.jclepro.2010.11.012

Avelino, F. & Wittmayer, J.M. (2016). Shifting Power Relations in Sustainability Transitions: A Multi-actor Perspective. *Journal of Environmental Policy & Planning*, 18 (5), 628–649. https://doi.org/10.1080/1523908X.2015.1112259

Balconi, M., Brusoni, S. & Orsenigo, L. (2010). In defence of the linear model: An essay. *Research Policy*, 39 (1), 1–13. https://doi.org/10.1016/j.respol.2009.09.013

Barker, C. (2002). *Making sense of cultural studies: central problems and critical debates*. London: SAGE.

Bateson, G. (1955). A theory of play and fantasy. *Psychiatric Research Reports*, 2, 39–51

Bekker, M. & Steyn, H. (2007). Defining ‘project governance’ for large capital projects. *Proceedings of AFRICON 2007*, Windhoek, South Africa, September 2007. 1–13. Windhoek, South Africa: IEEE. https://doi.org/10.1109/AFRCON.2007.4401604

Bekker, M.C. (2014). Project governance: 'Schools of thought'. *South African Journal of Economic and Management Sciences*, 17 (1), 22–32. https://doi.org/10.4102/sajems.v17i1.595

Bell, E., Bryman, A. & Harley, B. (2019). *Business Research Methods*.

Berkhout, F. (2014). *Sustainable Innovation Management*. Oxford University Press. https://doi.org/10.1093/oxfordhb/9780199694945.013.011

Beveridge, R. & Guy, S. (2005). The rise of the eco-preneur and the messy world of environmental innovation. *Local Environment*, 10 (6), 665–676. https://doi.org/10.1080/13549830500321972

Bhattarai, U., Maraseni, T. & Apan, A. (2022). Assay of renewable energy transition: A systematic literature review. *Science of The Total Environment*, 833, 155159. https://doi.org/10.1016/j.scitotenv.2022.155159

Bidmon, C.M. & Knab, S.F. (2018). The three roles of business models in societal transitions: New linkages between business model and transition research. *Journal of Cleaner Production*, 178, 903–916. https://doi.org/10.1016/j.jclepro.2017.12.198

Bolton, R. & Hannon, M. (2016). Governing sustainability transitions through business model innovation: Towards a systems understanding. *Research Policy*, 45 (9), 1731–1742. https://doi.org/10.1016/j.respol.2016.05.003

Bush, V. (1945). Science: The Endless Frontier. *Transactions of the Kansas Academy of Science (1903-)*, 48 (3), 231. https://doi.org/10.2307/3625196

Cope, D.G. (2014). Methods and Meanings: Credibility and Trustworthiness of Qualitative Research. *Oncology Nursing Forum*, 41 (1), 89–91. https://doi.org/10.1188/14.ONF.89-91

Danish Ministry of Climate (2020). PERFORMANCE OF OFFSHORE WIND FARMS. https://ens.dk/sites/ens.dk/files/Globalcooperation/english_factsheet_performance_of_offshore_wind_farms.pdf

Dedecca, J.G., Hakvoort, R.A. & Ortt, J.R. (2016). Market strategies for offshore wind in Europe: A development and diffusion perspective. *Renewable and Sustainable Energy Reviews*, 66, 286–296. https://doi.org/10.1016/j.rser.2016.08.007

DeJonckheere, M. & Vaughn, L.M. (2019). Semistructured interviewing in primary care research: a balance of relationship and rigour. *Family Medicine and Community Health*, 7 (2), e000057. https://doi.org/10.1136/fmch-2018-000057

Díaz, H. & Guedes Soares, C. (2020). Review of the current status, technology and future trends of offshore wind farms. *Ocean Engineering*, 209, 107381. https://doi.org/10.1016/j.oceaneng.2020.107381

DiCicco-Bloom, B. & Crabtree, B.F. (2006). The qualitative research interview. *Medical Education*, 40 (4), 314–321. https://doi.org/10.1111/j.1365-2929.2006.02418.x

Ecogain (2021). Samrådshandling: VINDKRAFTSANLÄGGNINGEN BALTIC OFFSHORE DELTA och tillhörande internkabelnät i Sveriges ekonomiska zon, Östersjön. https://www.njordroffshorewind.eu/wp-content/uploads/2021/12/BalticOffshoreDelta_SLUTVERSION_211207_HQ.pdf

Energimyndigheten (2022). *Affordable and Clean Energy*. https://www.energimyndigheten.se/en/about-us/ [2022-12-01]

Entman, R.M. (1993). Framing: Toward Clarification of a Fractured Paradigm. *Journal of Communication*, 43 (4), 51–58. https://doi.org/10.1111/j.1460-2466.1993.tb01304.x

Esteban, M.D., Diez, J.J., López, J.S. & Negro, V. (2011). Why offshore wind energy? *Renewable Energy*, 36 (2), 444–450. https://doi.org/10.1016/j.renene.2010.07.009

European Comission (2022). *Renewable energy targets*. https://energy.ec.europa.eu/topics/renewable-energy/renewable-energy-directive-targets-and-rules/renewable-energy-targets_en [2022-09-13]

European Environment Agency I (2021). *Share of energy consumption from renewable sources in Europe — European Environment Agency*. https://www.eea.europa.eu/data-and-maps/indicators/renewable-gross-final-energy-consumption-5/assessment [2022-09-12]

European Environment Agency II (2009). *Europe's onshore and offshore wind energy potential : an assessment of environmental and economic constraints*. LU: Publications Office. https://data.europa.eu/doi/10.2800/11373 [2022-05-27]

Flick, U. (ed.) (2018). *The Sage handbook of qualitative data collection*. Los Angeles: Sage Reference.
Flyvbjerg, B. (2006). Five Misunderstandings About Case-Study Research. *Qualitative Inquiry*, 12 (2), 219–245. https://doi.org/10.1177/1077800405284363
Flyvbjerg, B., Bruzelius, N. & Rothengatter, W. (2004). Megaprojects and Risk: An Anatomy of Ambition. *International Journal of Public Sector Management*, 17 (3), 275–277. https://doi.org/10.1108/09513550410530199
Försvarsmakten (2022). *FÖRSVARSMAKTEN Vi försvarar Sverige, landets intressen, vår frihet och rätt att leva som vi själva väljer.* https://www.forsvarsmakten.se/sv/ [2022-12-01]
Geels, F.W. (2005). The dynamics of transitions in socio-technical systems: A multi-level analysis of the transition pathway from horse-drawn carriages to automobiles (1860–1930). *Technology Analysis & Strategic Management*, 17 (4), 445–476. https://doi.org/10.1080/09537320500357319
Geels, F.W. (2011). The multi-level perspective on sustainability transitions: Responses to seven criticisms. *Environmental Innovation and Societal Transitions*, 1 (1), 24–40. https://doi.org/10.1016/j.eist.2011.02.002
Geels, F.W. (2019). Socio-technical transitions to sustainability: a review of criticisms and elaborations of the Multi-Level Perspective. *Current Opinion in Environmental Sustainability*, 39, 187–201. https://doi.org/10.1016/j.cosust.2019.06.009
Geels, F.W. (2020). Micro-foundations of the multi-level perspective on socio-technical transitions: Developing a multi-dimensional model of agency through crossovers between social constructivism, evolutionary economics and neo-institutional theory. *Technological Forecasting and Social Change*, 152, 119894. https://doi.org/10.1016/j.techfore.2019.119894
Geels, F.W., Kern, F., Fuchs, G., Hinderer, N., Kungl, G., Mylan, J., Neukirch, M. & Wassermann, S. (2016). The enactment of socio-technical transition pathways: A reformulated typology and a comparative multi-level analysis of the German and UK low-carbon electricity transitions (1990–2014). *Research Policy*, 45 (4), 896–913. https://doi.org/10.1016/j.respol.2016.01.015
Ghazali, D., Guericolas, M., Thys, F., Sarasin, F., Arcos González, P. & Casalino, E. (2018). Climate Change Impacts on Disaster and Emergency Medicine Focusing on Mitigation Disruptive Effects: an International Perspective. *International Journal of Environmental Research and Public Health*, 15 (7), 1379. https://doi.org/10.3390/ijerph15071379
Gode, J., Löfblad, E., Unger, T., Renström, J., Holm, J. & Montin, S. (2021). Efterfrågan på fossilfri el Analys av högnivåscenario. https://www.energiforetagen.se/globalassets/dokument/fardplaner/scenario-2045-april-2021/scenarioanalys-efterfragan-fossilfri-el-2045-slutrapport.pdf
Godin, B. (2006). The Linear Model of Innovation: The Historical Construction of an Analytical Framework. *Science, Technology, & Human Values*, 31 (6), 639–667
Goffman, E. & Berger, B. (1974). *Frame Analysis An Essay on the Organization of Experience*.
Golafshani, N. (2015). Understanding Reliability and Validity in Qualitative Research. *The Qualitative Report*,. https://doi.org/10.46743/2160-3715/2003.1870

Grin, J. (2016). Transition Studies: Basic Ideas and Analytical Approaches. In: Brauch, H.G., Oswald Spring, Ú., Grin, J., & Scheffran, J. (eds) *Handbook on Sustainability Transition and Sustainable Peace*. Cham: Springer International Publishing. 105–121. https://doi.org/10.1007/978-3-319-43884-9_4

Havs- och vattenmyndigheten (2022). *Regeringen fattar beslut om Sveriges första havsplaner - Aktuellt - Havs- och vattenmyndigheten*. https://www.havochvatten.se/arkiv/aktuellt/2022-02-15-regeringen-fattar-beslut-om-sveriges-forsta-havsplaner.html [2022-06-07]

Hernández-Chea, R., Jain, A., Bocken, N.M.P. & Gurtoo, A. (2021). The Business Model in Sustainability Transitions: A Conceptualization. *Sustainability*, 13 (11), 5763. https://doi.org/10.3390/su13115763

Hoox, Joop.J. & Boeije, H. (2005). Data collection, primary vs. secondary. http://www.joophox.net/publist/ESM_DCOL05.pdf

Houghton, C., Casey, D., Shaw, D. & Murphy, K. (2013). Rigour in qualitative case-study research. *Nurse Researcher*, 20 (4), 12–17. https://doi.org/10.7748/nr2013.03.20.4.12.e326

van Hulst, M. & Yanow, D. (2016). From Policy "Frames" to "Framing": Theorizing a More Dynamic, Political Approach. *The American Review of Public Administration*, 46 (1), 92–112. https://doi.org/10.1177/0275074014533142

Hultman, E., Tinjic, A., Jama, M., Zubair, M., Elamin, E., Falkenhain, E. & Yousaf, M.H. (2022). The Baltic Offshore Delta - Conflict Assessment.

IEA (2021). *Renewables 2021 - Analysis and forecast to 2026*. https://iea.blob.core.windows.net/assets/5ae32253-7409-4f9a-a91d-1493ffb9777a/Renewables2021-Analysisandforecastto2026.pdf

IPCC (2022). *Climate Change 2022: Impacts, Adaptation and Vulnerability*. https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_FullReport.pdf

IRENA (2020). *Innovative solutions for 100% renewable power in Sweden*. https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2020/Jan/IRENA_Sweden_Innovative_power_2020.pdf

Joly, P.-B. (2017). Beyond the Competitiveness Framework? Models of Innovation Revisited: *Journal of Innovation Economics & Management*, n° 22 (1), 79–96. https://doi.org/10.3917/jie.pr1.0005

Kanumarath, A. (2022). BIDDING ON THE FUTURE: A COMPARATIVE ANALYSIS OF OFFSHORE WIND AUCTIONS IN THE UK AND THE NETHERLANDS. http://www.diva-portal.org/smash/get/diva2:1671784/FULLTEXT01.pdf

Karns, M.P. (2022). *nongovernmental organization*. https://www.britannica.com/topic/nongovernmental-organization [2022-12-01]

Kern, F., Verhees, B., Raven, R. & Smith, A. (2015). Empowering sustainable niches: Comparing UK and Dutch offshore wind developments. *Technological Forecasting and Social Change*, 100, 344–355. https://doi.org/10.1016/j.techfore.2015.08.004

Kinning, L. (2022). Sammanställning över planerad havsbaserad vindkraft i Sverige. https://svenskvindenergi.org/wp-content/uploads/2022/05/Sammanstallning-over-planerad-havsbaserad-vindkraft-2022-05-03-1.pdf

Klakegg, O.J., Williams, T., Magnussen, O.M. & Glasspool, H. (2008). Governance Frameworks for Public Project Development and Estimation. *Project Management Journal*, 39 (1_suppl), S27–S42. https://doi.org/10.1002/pmj.20058

Lamb, W.F., Wiedmann, T., Pongratz, J., Andrew, R., Crippa, M., Olivier, J.G.J., Wiedenhofer, D., Mattioli, G., Khourdajie, A.A., House, J., Pachauri, S., Figueroa, M., Saheb, Y., Slade, R., Hubacek, K., Sun, L., Ribeiro, S.K., Khennas, S., de la Rue du Can, S., Chapungu, L., Davis, S.J., Bashmakov, I., Dai, H., Dhakal, S., Tan, X., Geng, Y., Gu, B. & Minx, J. (2021). A review of trends and drivers of greenhouse gas emissions by sector from 1990 to 2018. *Environmental Research Letters*, 16 (7), 073005. https://doi.org/10.1088/1748-9326/abee4e

Länsstyrelsen (2022). *Om oss*. https://www.lansstyrelsen.se/stockholm.html [2022-12-01]

Lazard (2022). *Lazard.com | Levelized Cost Of Energy, Levelized Cost Of Storage, and Levelized Cost Of Hydrogen*. https://www.lazard.com/perspective/levelized-cost-of-energy-levelized-cost-of-storage-and-levelized-cost-of-hydrogen/ [2022-09-12]

Leyden, D.P. & Menter, M. (2018). The legacy and promise of Vannevar Bush: rethinking the model of innovation and the role of public policy. *Economics of Innovation and New Technology*, 27 (3), 225–242. https://doi.org/10.1080/10438599.2017.1329189

Lincoln, Y.S. (1995). Emerging Criteria for Quality in Qualitative and Interpretive Research. *Qualitative Inquiry*, 1 (3), 275–289. https://doi.org/10.1177/107780049500100301

Lincoln, Y.S. & Guba, E.G. (1986). But is it rigorous? Trustworthiness and authenticity in naturalistic evaluation. *New Directions for Program Evaluation*, 1986 (30), 73–84. https://doi.org/10.1002/ev.1427

Lombardi, D., Uslu, B. & Bailey, J.M. (2020). Extreme Weather Events and the Climate Crisis: What is the Connection? (3), 5

Long, T.B., Blok, V. & Coninx, I. (2019). The diffusion of climate-smart agricultural innovations: Systems level factors that inhibit sustainable entrepreneurial action. *Journal of Cleaner Production*, 232, 993–1004. https://doi.org/10.1016/j.jclepro.2019.05.212

Loorbach, D. & Wijsman, K. (2013). Business transition management: exploring a new role for business in sustainability transitions. *Journal of Cleaner Production*, 45, 20–28. https://doi.org/10.1016/j.jclepro.2012.11.002

Macalister, T. (2004). *Wind reaper | Energy | The Guardian*. https://www.theguardian.com/environment/2004/sep/18/energy.renewableenergy [2022-10-31]

Markard, J. (2012). Sustainability transitions: An emerging field of research and its prospects. *Research Policy*, 13

Mead, G.H. (1934). *Mind, Self, and Society from the Standpoint of a Social Behaviorist*. Chicago: University of Chicago Press.

Miljödepartmentet (2022). *Pressträff om havsplaner och havsbaserad vindkraft*. https://www.regeringen.se/49ae25/globalassets/regeringen/dokument/miljodepartementet/presstraffar----presentationer/2022/presentationsbilder-fran-presstraff-med-annika-strandhall-och-khashayar-farmanbar-den-19-maj-2022

Möckel, F. (2020). The Crucial Role of the Facilitator: Analysing Identity Construction and Dilemmas. 46

Morris, P.W.G. & Geraldi, J. (2011). Managing the Institutional Context for Projects. 13

Mowery, D.C. (1983). Economic theory and government technology policy. *Policy Sciences*, 16 (1), 27–43. https://doi.org/10.1007/BF00138466
Njordr Offshore Wind (2021). *Pågående projekt - Njordr Offshore Wind AB*. https://www.njordroffshorewind.eu/pagaende-projekt/ [2022-02-17]
O'Connor, H., Madge, C., Shaw, R. & Wellens, J. (2008). Internet-based Interviewing. In: *The SAGE Handbook of Online Research Methods*. 1 Oliver's Yard, 55 City Road, London England EC1Y 1SP United Kingdom: SAGE Publications, Ltd. 271–289. https://doi.org/10.4135/9780857020055.n15
Pallardy, R. (2022). *IPCC Report Analysis: The Top Five Measures to Halve Emissions by 2030 | Journey to Zero*. https://journeytozerostories.neste.com/sustainability/ipcc-report-analysis-top-five-measures-halve-emissions-2030?gclid=CjwKCAjwsfuYBhAZEiwA5a6CDMBsd-movP2JFmziya4C4WSU0RzU49ekHX6LpHGmtJbMUCZTE6n4gNRoC-COIQAvD_BwE [2022-09-12]
Rapacka, P. (2021). *Installed capacity in offshore wind farms in Swedish waters reaches 192 MW – Baltic Wind*. https://balticwind.eu/installed-capacity-in-offshore-wind-farms-in-swedish-waters-reaches-192-mw/ [2022-09-09]
Regeringen (2022). *Uppdrag att utreda frågor om exklusivitet för anläggande av vindkraftsparker i allmänt vatten och i Sveriges ekonomiska zon*. https://www.regeringen.se/496d67/contentassets/14918901a1984405859701dce8f17632/uppdrag-att-utreda-fragor-om-exklusivitet-for-anlaggande-av-vindkraftsparker-i-allmant-vatten-och-i-sveriges-ekonomiska-zon-m202200768
Regeringskansliet I (2022). *Regeringen snabbar på utbyggnaden av vindkraft - Regeringen.se*. https://www.regeringen.se/49ae25/globalassets/regeringen/dokument/miljodepartementet/presstraffar----presentationer/2022/presentationsbilder-fran-presstraff-med-annika-strandhall-och-khashayar-farmanbar-den-19-maj-2022 [2022-09-09]
Regeringskansliet II (2022). *The Government and the Government Offices*. https://www.regeringen.se/other-languages/english---how-sweden-is-governed/ [2022-12-01]
Rip, A. & Kemp, R. (1996). Technological change. https://kemp.unu-merit.nl/Rip%20and%20Kemp.pdf
Ritchie, H., Roser, M. & Rosado, P. (2020). *Fossil Fuels - Our World in Data*. https://ourworldindata.org/fossil-fuels [2022-09-12]
Ritzén, J. (2021). *Sveriges största vindkraftpark planeras utanför Stockholms skärgård - DN.SE*. https://www.dn.se/sthlm/sveriges-storsta-vindkraftpark-planeras-utan-for-stockholms-skargard/ [2022-02-17]
Rosenberg, N. (1994). *Exploring the black box: Technology economics and history*. New York: Cambridge University Press.
Rothwell, R. (1994). Towards the Fifth-generation Innovation Process. *International Marketing Review*, 11 (1), 7–31. https://doi.org/10.1108/02651339410057491
Ruuska, I., Ahola, T., Artto, K., Locatelli, G. & Mancini, M. (2011). A new governance approach for multi-firm projects: Lessons from Olkiluoto 3 and Flamanville 3 nuclear power plant projects. *International Journal of Project Management*, 29 (6), 647–660. https://doi.org/10.1016/j.ijproman.2010.10.001
Schaltegger, S., Lüdeke-Freund, F. & Hansen, E.G. (n.d.). Business Models for Sustainability. 26

Schot, J. & Geels, F.W. (2008). Strategic niche management and sustainable innovation journeys: theory, findings, research agenda, and policy. *Technology Analysis & Strategic Management*, 20 (5), 537–554. https://doi.org/10.1080/09537320802292651

Sharlin, H.I., Kelly, P. & Kranzberg, M. (1981). Technological Innovation: A Critical Review of Current Knowledge. *Technology and Culture*, 22 (2), 349. https://doi.org/10.2307/3104928

Shen, W., Chen, X., Qiu, J., Hayward, J.A., Sayeef, S., Osman, P., Meng, K. & Dong, Z.Y. (2020). A comprehensive review of variable renewable energy levelized cost of electricity. *Renewable and Sustainable Energy Reviews*, 133, 110301. https://doi.org/10.1016/j.rser.2020.110301

Söderholm, P. (2011). Offshore wind power policy and planning in Sweden. *Energy Policy*, 8

Sovacool, B.K. & Geels, F.W. (2016). Further reflections on the temporality of energy transitions: A response to critics. *Energy Research & Social Science*, 22, 232–237. https://doi.org/10.1016/j.erss.2016.08.013

Sovacool, B.K., Hess, D.J., Amir, S., Geels, F.W., Hirsh, R., Rodriguez Medina, L., Miller, C., Alvial Palavicino, C., Phadke, R., Ryghaug, M., Schot, J., Silvast, A., Stephens, J., Stirling, A., Turnheim, B., van der Vleuten, E., van Lente, H. & Yearley, S. (2020). Sociotechnical agendas: Reviewing future directions for energy and climate research. *Energy Research & Social Science*, 70, 101617. https://doi.org/10.1016/j.erss.2020.101617

Stake, R.E. (1995). *The Art of Case Study Research*.

Stockholms Stad (2017). Strategy for a fossil-fuel free Stockholm by 2040. https://international.stockholm.se/globalassets/rapporter/strategy-for-a-fossil-fuel-free-stockholm-by-2040.pdf

Svenska Kraftnät (2022). *Start | Svenska kraftnät*. https://www.svk.se/ [2022-12-01]

Sveriges Radio (2022). Tidöavtalet kan fördröja havsbaserad vindkraft – ”läggs en våt filt över utbyggnaden”. https://sverigesradio.se/artikel/tidoavtalet-kan-fordroja-havsbaserad-vindkraft-laggs-en-vat-filt-over-utbyggnaden

Swedish Agency for Marine and Water Management (2022). *Start - Swedish Agency for Marine and Water Management*. https://www.havochvatten.se/en/start.html [2022-12-01]

Swedish Wind Energy Association I (2021). Roadmap 2040 Wind power: combating climate change and improving competitiveness. https://swedishwindenergy.com/wp-content/uploads/2021/01/Roadmap-2040-ENG-rev-2020.pdf

Swedish Wind Energy Association II (2021). Statistik om vindkraftsärenden. https://svenskvindenergi.org/wp-content/uploads/2021/05/Statistik-om-vindkraftsarenden-2014-2020.pdf

Teddlie, C. & Yu, F. (2007). Mixed Methods Sampling: A Typology With Examples. *Journal of Mixed Methods Research*, 1 (1), 77–100. https://doi.org/10.1177/1558689806292430

THEMA (2021). *Offshore wind development key to meet Sweden’s climate and growth targets*. https://svenskvindenergi.org/wp-content/uploads/2021/12/Offshore-wind-development-key-to-meet-Swedens-climate-and-growth-targets.pdf

Turbines DK (2022). *Statistics - Wind turbines in Denmark*. https://turbines.dk/statistics/ [2022-09-13]

UN I (2021). *Secretary-General's statement on the IPCC Working Group 1 Report on the Physical Science Basis of the Sixth Assessment | United Nations Secretary-General*. https://www.un.org/sg/en/content/secretary-generals-statement-the-ipcc-working-group-1-report-the-physical-science-basis-of-the-sixth-assessment [2022-09-13]
UN II (2022). *Energy - United Nations Sustainable Development*. https://www.un.org/sustainabledevelopment/energy/ [2022-06-07]
UNFC (2022). *The Paris Agreement | UNFCCC*. https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement [2022-09-12]
Verbong, G. & Geels, F. (2007). The ongoing energy transition: Lessons from a socio-technical, multi-level analysis of the Dutch electricity system (1960–2004). *Energy Policy*, 35 (2), 1025–1037. https://doi.org/10.1016/j.enpol.2006.02.010
Verbong, G., Geels, F.W. & Raven, R. (2008). Multi-niche analysis of dynamics and policies in Dutch renewable energy innovation journeys (1970–2006): hype-cycles, closed networks and technology-focused learning. *Technology Analysis & Strategic Management*, 20 (5), 555–573. https://doi.org/10.1080/09537320802292719
Waldo, Å. (2012). Offshore wind power in Sweden—A qualitative analysis of attitudes with particular focus on opponents. *Energy Policy*, 11
Wallenberg, B. & Lindsten, P.O. (2021). *Sverige inte redo när nya energins rockstjärna gör entré*. https://www.di.se/hallbart-naringsliv/sverige-inte-redo-nar-nya-energins-rockstjarna-gor-entre/ [2022-11-01]
Westin, M. (2019). Rethinking power in participatory planning. 192
Wickström, J. (2022). *Den nya regeringen storsatsar på kärnkraft*. https://www.energi.se/artiklar/2022/oktober-2022/den-nya-regeringen-storsatsar-pa-karnkraft/ [2022-11-01]
Winch, G. (1989). The construction firm and the construction project: a transaction cost approach. *Construction Management and Economics*, 7 (4), 331–345. https://doi.org/10.1080/01446198900000032
Wind Europe I (2022). *Wind energy in Europe 2021 Statistics and the outlook for 2022-2026*. https://windeurope.org/intelligence-platform/product/wind-energy-in-europe-2021-statistics-and-the-outlook-for-2022-2026/
Wind Europe II (2022). *Sweden: Making up lost ground on offshore wind | WindEurope*. https://windeurope.org/newsroom/news/sweden-making-up-lost-ground-on-offshore-wind/ [2022-09-13]
Wind Europe III (2019). *Our energy, our future: How offshore wind will help Europe go carbon-neutral*. https://windeurope.org/wp-content/uploads/files/about-wind/reports/WindEurope-Our-Energy-Our-Future.pdf
Zolfagharian, M., Walrave, B., Raven, R. & Romme, A.G.L. (2019). Studying transitions: Past, present, and future. *Research Policy*, 48 (9), 103788. https://doi.org/10.1016/j.respol.2019.04.012

Popular science summary

The usage of electricity has become a normality in our daily lives. In the past decades, the energy demand in society rapidly increased. Latest projections show that the trend will continue due to the electrification in society (e.g. electric cars). For the time being, the energy sector is the leading polluter of greenhouse gas emissions, depending two-thirds on fossil fuels. The generation of energy from fossil fuels harms the well-being of our planet and threatens humankind's existence due to climate change.

Nevertheless, there is hope to transform the prevailing fossil energy system into a sustainable one. This desirable change needs the expansion of renewable energies (e.g. wind and solar) to tackle future challenges due to global warming. Constructing large-scale offshore wind (OSW) parks on the sea is one way to adopt green energy sources in society. While the adoption of OSW in other European countries is accelerating, the uptake of OSW in Sweden is stagnant. These large infrastructure projects are initiated by the entrepreneur's ambition to construct an OSW park on the sea. To start the construction of the park in Sweden, the OSW entrepreneur has to engage in a permitting process which involves a plurality of actors.

This study investigated the entrepreneurial process to adopt OSW in Sweden from a governance perspective due to the number of involved actors in the permitting process. The author studied an OSW park project in Sweden currently in the planning stage. The insights of this research showed that the identified actors are using their agency and power to influence the entrepreneurial process differently. Some of the studied actors used their agency and power to support the OSW entrepreneur during the permitting process with the common goal to increase renewable energy production in Sweden in the long term.

Furthermore, the author discovered that it needs context to understand the entrepreneurial process of adopting OSW parks in Sweden. Predefined models often cannot cover the complexity of large infrastructure projects (e.g. OSW parks). Thus, applying a governance perspective on the case OSW project was useful. Future researchers could use the approach chosen for this research project in business and entrepreneurial studies to investigate the adoption of OSW park projects in other contexts.

Appendix 1

Interview guide:

OSW: Offshore Wind
XXX: Name of the interviewed organization

Can you tell me a bit about your role at XXX?

Why is XXX involved in OSW in Sweden?

- *What are the core-responsibilities of XXX regarding OSW adoption? (in the application process and beyond)*

How does XXX work to support OSW in Sweden?

- *How is XXX in particular engaged in the further adoption of OSW in Sweden?*
- *What are the long-term strategic goals that XXX has?*
- *Resources that are mobilized? (Information / infrastructure)*

How relevant is OSW in Sweden for XXX?

- *Has XXX an interest that further OSW in Sweden gets adopted?*
- *How do you see the potential of OSW in Sweden?*
- *What are the conditions for a future adoption of OSW according to XXX in Sweden?*

How is XXX cooperating with other actors at the moment?

- *Which actor / actors are especially important to XXX?*
- *How does the work of other actors affect your work*
- *Conflicts of interests with particular actors?*

Do you feel that some actors have more power than others?

- *What kind of actors?*
- *How do you perceive your own power?*
- *In which way are they using their power?*

How are you involved in the application process for a building permit of an OSW park in the Baltic Sea?

- *Direct or indirect involvement?*

What kind of challenges faces XXX at the moment regarding OSW adoption?

- *Technical challenges?*
- *Organizational challenges?*

What are you planning to overcome these challenges?

- *What is done in particular XXX to solve conflicting interests?*
- *How positive are you that conflicting interests can be overcome in the future?*

At the end a little future outlook: What are the next steps that XXX is going to engage in regarding OSW in Sweden?

Publishing and archiving

Approved students' theses at SLU are published electronically. As a student, you have the copyright to your own work and need to approve the electronic publishing. If you check the box for **YES**, the full text (pdf file) and metadata will be visible and searchable online. If you check the box for **NO**, only the metadata and the abstract will be visible and searchable online. Nevertheless, when the document is uploaded it will still be archived as a digital file. If you are more than one author, the checked box will be applied to all authors. You will find a link to SLU's publishing agreement here:

- https://libanswers.slu.se/en/faq/228318.

☒ YES, I/we hereby give permission to publish the present thesis in accordance with the SLU agreement regarding the transfer of the right to publish a work.

☐ NO, I/we do not give permission to publish the present work. The work will still be archived and its metadata and abstract will be visible and searchable.