

The polarized attitudes of offshore wind

The social acceptance of planned offshore wind farm Västvind among Öckerö municipality residents

MILLA MARZELIUS 2023

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Abstract

Climate change, the energy crisis of 2022-2023, and estimations of future electricity demands have stressed the necessity for a rapid transition of the energy system. Offshore wind energy plays an important role in this transition, and is expected to expand considerably on global level, in the EU and Sweden. While Swedes show high support of wind energy, a majority of recent projects have been stopped on the local level.

The research on social acceptance of offshore wind energy farms in Sweden is still novel, and there is no previous study on the role of place attachment in a Swedish offshore case. This thesis studies the attitudes of residents in Öckerö municipality, Sweden to the local planned offshore wind energy farm Västvind, and the roles of anticipated impacts, general attitude to offshore wind and place attachment in the forming of Västvind attitudes.

Through convenience sampling, 154 residents in Öckerö municipality participated in an online survey that was communicated through local physical and online social media billboards. The relationships between variables were investigated by applying Spearman's rho and ordinal logistic regression calculations in Stata 17.

The respondents exhibited polarized attitudes to Västvind, with a majority of respondents choosing the most positive or most negative alternative available. In general, two thirds (66.2%) of respondents were positive to Västvind, and 26.6% were negative. The regression analysis concluded that respondents' anticipated impact on house prices and local energy supply were significant predictors of their attitude to Västvind. Their anticipated impact on ocean view, the municipality's climate impact, employment, pride of municipality, tourism, regional energy supply, the fishing industry, and local ecosystems were not. Residents' general attitude to offshore wind energy had a significant and strong association with their attitude to Västvind. Respondents' place attachment did not. Almost all respondents exhibited high levels of place attachment.

Further research into Swedish offshore cases is recommended, especially for focuses relating to motivations behind attitudes, energy production type preferences, anticipated loss of local influence and control of local resources, and place attachment.

Keywords: Offshore wind energy, Social acceptance, Place attachment, Västvind, Öckerö

Populärvetenskaplig sammanfattning

Klimatförändringarna, energikrisen och en ökande efterfrågan på el har uppmärksammat behovet av en hållbar omställning av energisystemet. Havsbaserad vindkraft spelar en viktig roll i denna omställning och förväntas expandera kraftigt globalt, i EU och i Sverige. Samtidigt möter projekt stort lokalt motstånd. Trots att svenskar generellt visar högt stöd för vindkraft så har en majoritet av de senaste projekten stoppats på lokal nivå.

Forskningen om social acceptans av havsbaserade vindkraftsparker i Sverige är fortfarande begränsad, och det finns ingen studie om platsaknytnings roll i ett svenskt fall. Detta examensarbete undersöker hur invånare i Öckerö kommun ställer sig till den planerade vindkraftsparken Västvind i Västerhavet, samt vilken roll som respondenters förväntade effekter, generella inställning till havsbaserad vindkraft och deras platsanknytning spelar i utformningen av attityder gentemot Västvind.

154 boende i Öckerö kommun deltog genom självurval i en webbenkät som kommunicerades genom lokala fysiska och webbaserade anslagstavlor. Sambanden mellan variabler undersöktes genom att använda Spearmans rho och ordinal logistisk regressionsanalys i Stata 17.

Enkätsvaren visade att två tredjedelar av de tillfrågade var positiva till Västvind och att en fjärdedel var negativa. Majoriteten av de tillfrågade kände starkt för ämnet. Regressionsanalysen visade att respondenternas förväntade påverkan från Västvind på huspriser och på lokal energiförsörjning har ett signifikant samband med deras inställning till Västvind. Deras förväntade påverkan på havsutsikten, kommunens klimatpåverkan, sysselsättningen, stolthet över kommunen, turism, regional energiförsörjning, fiskeindustrin och lokala ekosystem har inte det. Invånarnas allmänna inställning till havsbaserad vindkraft har ett signifikant och starkt samband med deras inställning till Västvind, men det har inte deras platsanknytning. Nästan alla respondenter uppvisade stark platsanknytning till Öckerö kommun.

Ytterligare forskning om svenska offshore-fall rekommenderas, särskilt för inriktningar som rör motiveringar bakom boendes attityder, vilken typ av energiproduktion som föredras, förväntad förlust av lokalt inflytande och kontroll över lokala resurser samt platsanknytning.

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1 Introduction

It has become increasingly clear that the window of opportunity for reaching global climate change mitigation targets is closing quickly (IPCC, 2022). The decisions and investments made in the coming years will be decisive in determining the living conditions for future generations, as well as the survival of many life-sustaining ecosystems and species (IPCC, 2023). The urgency of the transition is stressed in the Paris Agreement 1.5 °C target (UNFCCC, 2015), as well as in regional objectives, such as the 2050 and 2045 net-zero emissions targets of the European union and Sweden respectively (European Commission, 2020; Swedish Government Offices, 2017).

At the centre of this time sensitive transition is the energy system, the single largest sector contributor of greenhouse gas emissions globally (IPCC, 2022). For all IPCC scenarios where global warming is limited to 1.5 °C, renewable energy play an essential part (ibid.). Renewable production has become increasingly cost-efficient and there is currently technical potential to meet the global electricity demand with wind energy alone, even with conservative estimations (Bosch et al., 2017; Eurek et al., 2017; Volker et al., 2017). Offshore wind technology has especially improved recently, and is considered

“[...] one of the most promising routes to increase future power generation in the coming years in a way that meets Europe’s decarbonisation objectives and expected rise in electricity demand in an affordable manner.” (European Commission, 2020)

But technical potential is not enough. Much like land-based wind energy, offshore wind projects often meet local resistance. Visual impact, impact on local environment, and on local industries such as fisheries and tourism (Firestone et al., 2012) are just a portion of the negative aspects stressed by local opponents. In the municipality of Öckerö on the Swedish West Coast, the planning of the offshore wind farm Västvind is underway. Like many other wind farms, it has met local resistance from stakeholders and the political leadership of the municipality (Vidlund & Utbult, 2022). The case exemplifies the current difficulties in wind energy deployment in Sweden, where 71% of all wind energy projects were stopped by municipal opposition in 2022 (Westander & Henryson, 2023), although there is a high general support for wind energy (European Social Survey, 2016).

The thesis is structured as follows. In the introductory chapter, the background and context of the case is presented, and the research field of social acceptance of offshore wind farms is described. Chapter 2 provides the elements of an analytical framework for studying social acceptance, and chapter 3 presents the methodological design of the study. Chapter 4 comprises the results and analysis, and in chapter 5, the results and the methodological limitations of the study are discussed, and research focuses for future studies are identified.

1.1 Background

The following section carves out the context of the Västvind case, starting with the continuously increasing demand for fossil free electricity. Thereafter, the development and effects of offshore wind energy is described, and lastly, the Västvind case is presented.

1.1.1 Future electricity demand

The global electricity demand is expected to increase drastically in the next decades, owing partly to general expected energy demand increases, but also because of the climate transition and associated technological paradigm shifts, such as large-scale electrification of industry and transport sectors, and hydrogen production (IEA, 2020; Seck et al., 2022).

In Sweden alone, the electricity demand is expected to double between 2023 and 2035, from 140 terawatt-hours (TWh) to 280 TWh, indicating a need for a historically rapid energy production expansion rate. Ten years later, the demand will have increased an additional 90 TWh (Energimyndigheten, 2023b). The electrification of industry processes and transport, as well as hydrogen production, are some of the predicted main drivers of the increased demand (Energimyndigheten, 2023c). The Swedish base industry alone will need an additional 70 TWh to 2030 in order to transition, an increase equal to half of the country's current electricity use (SKGS, 2023). Later, or less ambitious, electrification scenarios would entail considerably delaying the transition of some of the largest emitters in Sweden.

The pending need for an increase in electricity supply is currently coexisting with a global energy crisis. The Covid-19 pandemic and the following economic recovery, increased inflation, as well as the Russian invasion war on Ukraine are some of the explanations of an increased volatility and cost of electricity (UN DESA, 2022), also showcasing the potential positive aspects of increased energy sufficiency within the EU.

The Swedish domestic electricity production has historically had relatively low levels of fossil fuel-based production, owing majorly to the early development of hydropower, as well as the large-scale establishment of nuclear energy production (Ritchie et al., 2022). However, the Swedish electricity system is connected to the European electricity market, where currently around 45% of the European electricity production is still fossil-based (Ember, 2023). Increased fossil free electricity production in Sweden does thus not only power the electrification of emission intensive domestic sectors and reduce demand of fossil-based electricity import to Sweden, but also increase the share of fossil free electricity on the European electricity market.

Importantly, renewable energy technology has developed considerably in the last decades, making it technically possible to produce enough electricity within Europe to meet future demands (Tröndle et al., 2019). This would require a combination of production sources, mainly from photovoltaics (PV), onshore and offshore wind. According to the International Renewable Energy Agency (IRENA) and the International Energy Agency (IEA), global offshore wind capacity will need to exceed 2,000 GW in 2050 to limit global warming to 1.5°C (IRENA, 2023).

1.1.2 Offshore wind energy

The Intergovernmental Panel on Climate Change (IPCC) have identified offshore wind energy as an important part of the energy transition (2022), and it is an essential part of the European Green Deal (The European Green Deal, 2019). While the first offshore wind farm opened more than 30 years ago (Olsen & Dyre, 1993), much has happened since then. The technology has developed considerably, with positive effects on cost efficiency, scaling possibilities and performance, making offshore projects increasingly common globally (IPCC, 2022). The cost of offshore wind energy production decreased in half between 2014 and 2018, and shows no indication of reaching a limit anytime soon (Davis et al., 2018). The potential for offshore wind power is larger than for onshore because offshore wind is stronger and less variable (Bosch et al., 2018) and there are more areas that are yet not utilized. With the development of floating foundations, additional areas are becoming accessible for energy production.

Wind energy is an intermittent energy source that varies at different ranges, from seconds to annual variations. Energy systems with a large share of non-plannable energy production requires balancing solutions to continuously meet the demand from consumers. These include energy storage, plannable energy production, power plant control, flexible grid systems, and increased transmission capacity (Barra et al., 2021; IPCC, 2022).

The establishment of offshore wind energy competes with several other interests for the use of marine areas. These include commercial fishing, tourism, aquaculture,

military use, and conservation efforts. According to a recent Swedish government report on co-existence between competing interests, some of the activities can be combined with offshore wind production in certain areas under certain circumstances but there is still much to develop in this area of research (HaV & Energimyndigheten, 2023).

Wind energy have been shown to have a negative effect on ecosystems above and below the ocean surface (Benhemma-Le Gall et al., 2021; Dierschke et al., 2016; Thaxter et al., 2017), primarily during the construction phase. During the operational stage there can be some positive impacts on ecosystems, for example thanks to the establishment of ocean floor structures that can function as habitats for different species, and protection from commercial fishing practices in the area (Hooper & Austen, 2014; van Hal et al., 2017). Wind farms can also cause disturbances to people, directly through its visual impact, and indirectly through economic impacts on specific sectors such as fishing and tourism.

Sweden were early adopters of offshore in the beginning of the 2000's, but a market-based approach to development have led most prospectors to develop land-based wind energy. With technology development the conditions have however improved, and many projects are now being planned. In 2022, the government initiated the development of expanding the offshore transmission grid to the territorial water limit (Landsbygds- och infrastrukturdepartementet, 2021). In March 2023, the Energy Agency had received around 60 applications for offshore wind energy establishments in non-overlapping areas (Energimyndigheten, 2023a).

Due to the increased political and commercial interest, there has recently been a number of reports focusing on enhanced process efficiency, development of new ocean plans, identification of goal conflicts, coexistence with other ocean activities, as well as suggestion to improve local processes and increase support etc in order to improve deployment efforts (Energimyndigheten, 2023a; HaV & Energimyndigheten, 2023; Havs och vattenmyndigheten, 2022; SOU 2023:18, 2023).

1.1.3 The case: Västvind, Öckerö municipality

The projector company Eolus is planning to build an offshore wind farm in Kattegatt in the North Sea and estimate that it could be up and running in 2027 at the earliest. The farm Västvind's future capacity potential is estimated to 1000 MW installed effect, enabling a yearly addition of around 4-4,5 TWh renewable electricity to the Swedish electricity grid (Eolus, 2021b). The farm would cover an area of 130km², with a maximum of 50 turbines of 280-320 m in total heigh each (Eolus, 2021b). Unlike

most planned offshore wind parks in Sweden today¹, the suggested area is not solely located in the Swedish Economic Zone (SEZ), but also in water areas belonging to Kungälv and Öckerö municipalities.

Öckerö municipality is located on the West coast of Sweden, North-West of Gothenburg. It is the only municipality in Sweden that is entirely based on islands, and consists of around 1 000 islands of which ten are inhabited (Öckerö kommun, 2023). The islands are connected to the mainland through ferry lines and is home to around 12 800 people (SCB, 2023). Öckerö municipality currently has three onshore wind turbines in different sizes on Hönö and Björkö islands².

Permit processes

Establishing offshore wind farms within the territorial waters of Sweden requires a different process than those entirely located outside of municipal borders. Both types of projects need to apply for several permits to be allowed to investigate sea bottom circumstances, and the potential effect of the wind farm on ecosystems. However, projects situated within the SEZ needs permission from the government to establish the wind farm, while projects situated within the municipal borders need the endorsement of the municipality. If this is not provided, the project is not allowed to be realized (SFS 1998:808, n.d.). While the endorsement is technically a legal requirement, it is colloquially referred to as the *municipal veto* (Parliament of Sweden, 2022). While the process is ongoing, the project has received strong criticism from Öckerö municipality, while Kungälv municipality is positively disposed to the suggestion.

Öckerö municipality's standpoint

In 2021-2022 a delimitation consultation was carried out, where the municipalities, the public, and relevant authorities could ask questions and share their opinions about the project (Eolus, 2021b). Kungälv's municipal council gave their endorsement for the continued development of the project, but Öckerö municipality took a negative stance against the suggested plan (Vidlund & Utbult, 2022). In the published statement, the municipality stressed the plan's visual impact, saying that "just this single aspect would cause enough negative consequences to deem the procedure unacceptable" (Vidlund & Utbult, 2022) [My translation]. Additional concerns were raised about the impact on fisheries, outdoor life, and long-term effects on local environment and animal life. The statement especially stressed the need for an assessment of the cumulative effects from all planned nearby projects (Vidlund & Utbult, 2022).

¹ See Vindbrukskollen at vbk.lansstyrelsen.se.

² See Vindbrukskollen at: vbk.lansstyrelsen.se

While both the approved statement and the alternative statements from opposition parties requested a coordination of environmental assessments between Västvind and other projects along the West Coast (Brauer & Bryngelsson, 2022; Lanne, 2022), the elected political parties of Öckerö municipality differ greatly in their opinion of offshore wind production outside of the islands. The largest party Kristdemokraterna strongly opposes any offshore wind establishments in the municipality (2022; SVT Valkompass, 2022). They currently hold power together with Moderaterna, who oppose Västvind as long as they do not have more information about the specific project (SVT Valkompass, 2022), and Liberalerna who are positive to offshore wind in Öckerö (ibid.). The oppositional parties also differ in opinion between them, with Socialdemokraterna, Miljöpartiet and Vänsterpartiet being supportive of offshore wind production in Öckerö (Miljöpartiet Öckerö, 2018; Socialdemokraterna Öckerö, 2022; SVT Valkompass, 2022; Tovatt & Lanne, 2022), and Sverigdemokraterna being opposed to the idea (SVT Valkompass, 2022). The wind farm is perceived as a polarizing topic on the islands, and the debate was considered especially intense during the period leading up to the municipal elections of 2022 (Öckerö municipality employee, personal communication, March 1, 2023).

During the spring of 2023, Eolus opened an additional delimitation consultation period to clarify parts of the planned operations and to gather opinions from the public and those particularly affected by the operations. The supplementary consultation document focused primarily on new updates from the process, and the conditions for the different cable connection alternatives between the wind farm and land (Eolus, 2023). In July 2023, Eolus handed in the official permit application to the regional Land and environmental court, and to the government. For Eolus to be able to realize the project, they will need the municipality's endorsement (M. Svensson, personal communication, February 27, 2023).

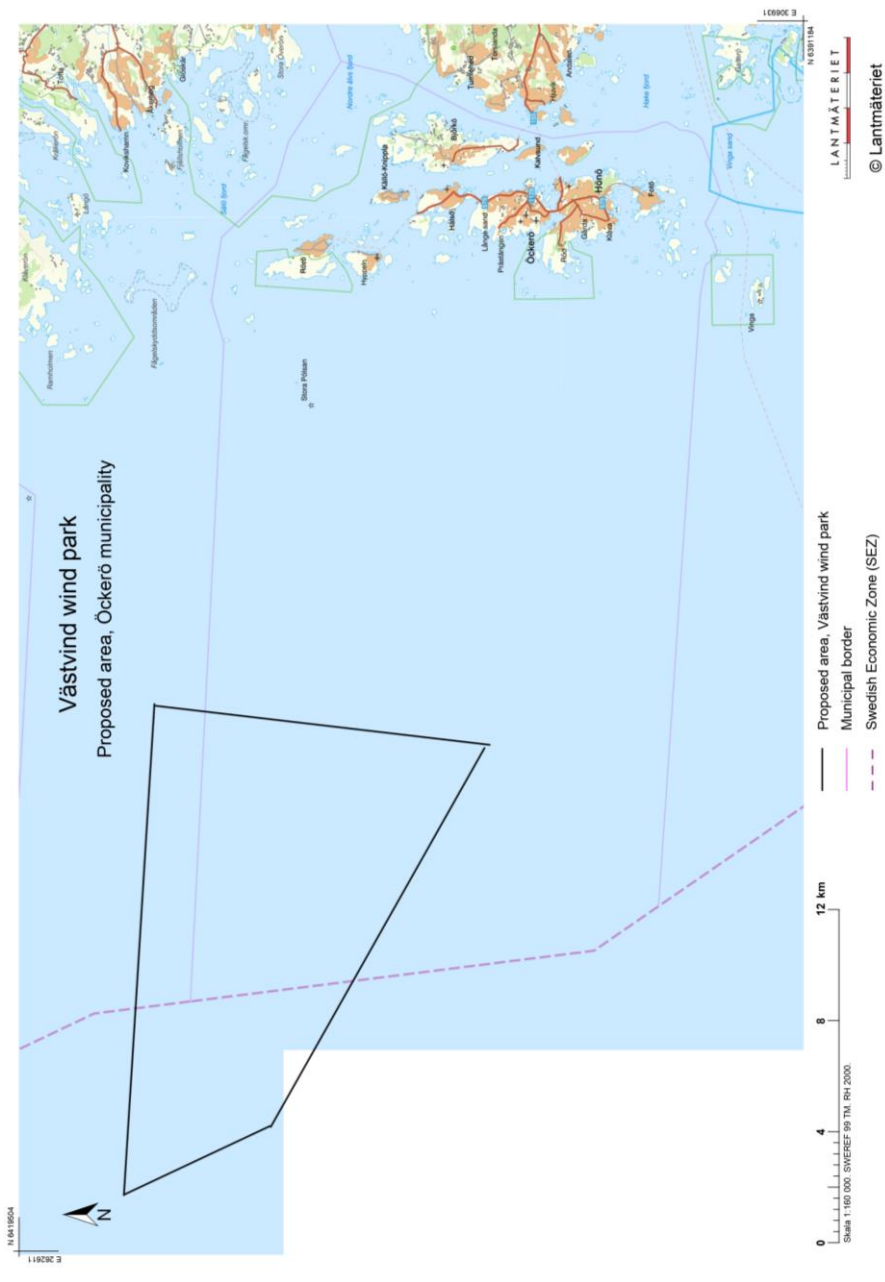


Figure 1. Map of Öckerö municipality with the proposed area for Västvind wind park marked out. The polygon mapping out the wind park is based on coordinates from the project owner Eolus’ permit application for the area examination (Eolus, 2021a). The background map is adapted from Topografisk webbkarta Visning, cache (version 1.1.0) by Lantmäteriet, 2023 (<https://minkarta.lantmateriet.se/>). Copyright 2023 by Lantmäteriet.

1.2 Previous research

The following chapter introduces the research field of social acceptance of offshore wind energy, first by rendering the different research approaches, focuses and impacting aspects of social acceptance available in previous research. Thereafter, the Nordic research on the topic is summarized shortly. Lastly, the research gap is identified and related to the offshore research field, the case, and the role of place attachment.

1.2.1 Social acceptance of offshore wind energy

The research on social acceptance of wind energy projects is extensive, but naturally mostly concerns land-based wind farms as this technology has been available for a longer period (Haggett, 2011). This research does however focus to a large extent on the same aspects that have later been showed to be important in the forming of social acceptance of offshore wind (Ibid.), such as the visual impact of wind turbines (Jobert et al., 2007; Jones & Eiser, 2009; Pasqualetti, 2011; Wolsink, 1989), the relationship between the local community and the developer, (Aitken, 2010; Ellis et al., 2007; Firestone et al., 2018; C. Gross, 2007; Toke, 2005; Wolsink, 2007), community trust in the process (Strachan & Lal, 2004; Walker et al., 2010; Warren et al., 2005; Wüstenhagen et al., 2007), community benefits (Baxter et al., 2013; García et al., 2016; Khorsand et al., 2015; Suškevičs et al., 2019), and the role of place attachment (Devine-Wright, 2009; Devine-Wright & Howes, 2010; Hall et al., 2013; van Veelen & Haggett, 2016).

As offshore wind energy projects have become more common, social acceptance research on residential attitudes towards local planned, and realized, projects have increased as well. Case studies in the USA (Bingaman et al., 2023; Bush & Hoagland, 2016; Firestone et al., 2012, 2012, 2018, 2020; Firestone & Kempton, 2007; Russell et al., 2020), South Korea (Park & Lee, 2021), Japan (Iwata et al., 2023), and Belgium (Penneman et al., 2022) shows how attitudes differ widely within and between communities, as well as within entire regions and countries (Cronin et al., 2021; H.-J. Kim et al., 2019; J.-H. Kim et al., 2020; Ladenburg, 2008; Skiniti et al., 2022; Teisl et al., 2015).

For several cases it has been noted that offshore wind establishment are locally a very polarized issue, with special acceptance characteristics. The opposition is often more engaged and thus more noticeable than the supporters (Fleming et al., 2022; Johansen, 2019), making it easy to underestimate public support (Sokoloski et al., 2018). Offshore wind debate in media follows a similar pattern, where negative aspects are more frequently mentioned than the positive (Schmidt, 2017). In several cases, it has also been showed how the public perception of an offshore wind establishment can

develop over the different stages of a project (Bingaman et al., 2023; Penneman et al., 2022), and throughout the political discussion (Bush & Hoagland, 2016).

While much of the findings from research on social acceptance of land-based wind farms can be applied to cases of offshore wind farms, there are also important differences. Primarily, that the public seems to prefer offshore sites to land-based alternatives in studies carried out in Sweden (Ek, 2006; Waldo et al., 2013), Denmark (Ladenburg et al., 2020), Norway (Linnerud et al., 2022), Germany (Sonnberger & Ruddat, 2017), the UK (Jones & Eiser, 2010) and Chile (Aravena et al., 2006), often with visual impact as an important motivator.

Visual impact, place attachment and climate change perceptions

Visual impacts have continuously been showed to be one of the most important pillars in local resistance towards land-based turbines (Leiren et al., 2020; Lundheim et al., 2022; Rand & Hoen, 2017), and claims have been made that offshore wind energy would provide a solution to this concern (Henderson, 2002; Ladenburg, 2008, 2010; Still, 2001). However, research focusing on plans for specifically offshore turbines have shown that while it may sometimes be less prevalent compared to land-based alternatives, visual impacts is still a common concern among residents living close to sites examined for offshore wind energy (Soerensen et al., 2001).

The location (Devine-Wright & Wiersma, 2020), distance from coast (Cranmer et al., 2023), and size of farm (Ladenburg & Möller, 2011) also affects social acceptance, potentially because of its impact on the view. The perceived visual intrusion of an offshore wind farm have in some cases been linked to residents' opinion of renewable energy (Gkeka-Serpetsidaki et al., 2022), and the ocean beliefs of respondents (Bidwell, 2017). Gee (2010) found that the actual seaside aesthetic could not explain attitudes to the studied offshore wind project. Instead, it was rather the respondents' convictions of the ocean as a natural space and their view of the local landscape as a part of the local identity that was linked to opposition, a view that was perceived to be disturbed by the new infrastructure.

Similarly, attachment to the place where the project is suggested, both the specific location and the larger community area, affects how respondents react to the proposed changes (Brownlee et al., 2015; Devine-Wright & Wiersma, 2020; Fleming et al., 2022; Gonyo et al., 2021; Kermagoret et al., 2016; van Veelen & Hagggett, 2016). For example, opponents with high place attachment tend to be more prone to take active action against suggested projects (Gonyo et al., 2021). However, the impacts of place attachment on social acceptance of wind energy is still considered relatively unexplored (Lundheim et al., 2022).

People's perception of climate change also plays an important role in explaining attitudes (Cronin et al., 2021; Gee, 2010; Sonnberger & Ruddat, 2017), where higher priority of the issue also tends to render higher acceptance of offshore wind

establishments, to a higher degree than for land-based turbines (Sonnberger & Ruddat, 2017).

Stakeholders

Instead of studying the public opinion, many social acceptance studies have focused on the perceptions of offshore wind stakeholders, such as fishermen (Chen et al., 2015; Gray et al., 2005; Todt et al., 2011), tourists (Bidwell, 2023; Kermagoret et al., 2016; Lilley et al., 2010; Oh et al., 2023; Rudolph, 2014; Voltaire & Koutchade, 2020; Westerberg et al., 2013, 2015), recreationists (Bidwell et al., 2023; Brownlee et al., 2015; Dalton et al., 2020; Ferguson et al., 2021; Kermagoret et al., 2016; Ladenburg, 2010; Voltaire & Koutchade, 2020), and environmentalists (Kermagoret et al., 2016; Todt et al., 2011; Wolsink, 2010).

These stakeholder groups have been shown to share many concerns, while also showing heterogeneity in their opinion of the projects. Importantly, the involvement of stakeholders throughout the planning and decision-making process is central for creating good relations and local trust in the process (Chen et al., 2015; J. Dwyer & Bidwell, 2019; Klain et al., 2017; Lindroos, 2016). So is also the development of, and the type of community benefits (Tyler et al., 2022), process leaders (J. Dwyer & Bidwell, 2019), and process fairness (Firestone et al., 2020; Mills et al., 2019), and production ownership. In Norway, respondents were even more concerned with having local or national control over ownership and intended use than of whether the wind farm was onshore or offshore (Linnerud et al., 2022).

1.2.2 Nordic offshore wind energy research

In the Nordic literature on offshore wind acceptance, Danish research stands out. The world's first offshore wind farm was established in Denmark (Olsen & Dyre, 1993) and Jacob Ladenburg have studied attitudes, preferences and willingness-to-pay of offshore wind for well over a decade (2006, 2008, 2009, 2010, 2015; Ladenburg et al., 2020, 2023; Ladenburg & Dubgaard, 2007; Ladenburg & Skotte, 2022). Some of the main findings are that supportive attitudes were based on environmental concerns, and the prospect of increased energy supply reliance, employment and export (Ladenburg, 2006), while negative attitudes were motivated by visual aspects and impact on local environment (Ladenburg, 2006, 2008). However, the visual impact on attitudes did not seem to be related to the possible change of the ocean view from one's home (Ladenburg, 2008), but rather the farm's distance from the coastline (Ladenburg, 2009; Ladenburg et al., 2020; Ladenburg & Dubgaard, 2007), also corresponding with results from a Finnish offshore study (Westerlund, 2020). Respondents that had previous experience with large-scale offshore wind farms were generally more positive (Ladenburg & Möller, 2011), unless their experience included

a high level of visual intrusion which then caused them to perceive the visual impact of a (new) wind farm as more negative than other respondents (Ladenburg, 2009). Other Danish studies showed how permanent residents were more positive to the potential of a near-shore wind farm than second home owners (Johansen, 2019), and that the negative aspects of the potential wind farms were perceived by opponents as too great to be compensated by a co-ownership scheme (Johansen & Emborg, 2018). Many of the opponents also experienced cognitive dissonance from being critical to the local developments while stressing the need for a general renewable energy production expansion (Upham & Johansen, 2020).

Swedish cases

In the Swedish body of literature, research was primarily carried out in the early 2000's when the first offshore wind farms had been established. In 2003, Mels (2003) found that stakeholders in Torsås municipality were very positive to the nearby offshore wind farms, as it "put Torsås on the map" (Mels, 2003, p. 5), and strengthened the municipal identity. A few years later, Waldo and Klintman (2010) studied the attitudes of stakeholders of two offshore wind farms in a report for the Swedish Environmental Protection Agency. They found that positive attitudes to the farms were driven by both ethical and material values. Mostly by high environmental importance, but also by the prospect of local economic growth and employment. The negative attitudes were motivated by aesthetic values, primarily the change of the ocean view, and ethical values connected to the belief that wind energy is not profitable or efficient. Building on the research from the report, Waldo (2012) published an article about the cases stating that the visual impact was an important source of opposition, and that opponents often showed scepticism towards wind energy in general, especially when compared to nuclear power. In France, another country with a large nuclear energy sector, a similar connection between offshore wind and nuclear power have been found in the public debate, where nuclear power is used as a comparison to invalidate the efficiency and need of offshore wind technology in the energy system (Desvallées & Arnauld de Sartre, 2023).

1.2.3 The research gap

In summary, there is a wide array of literature on offshore wind social acceptance, its characteristics and factors influencing the opinions of residents, stakeholders, and the public, but there is still a knowledge gap in understanding how local populations perceive offshore wind projects (Haraldsson et al., 2020). While many conclusions have been repeatedly proven to be relevant theoretical tools for explaining social acceptance, what is also evident in the existing research is the importance of the local context for each case. Attitudes to a proposed project cannot be fully understood

without researching the specific project. Thus, each case study brings new information to the body of literature.

Previous research on Swedish and Nordic cases have concluded interesting findings, primarily focused on which aspects that are driving oppositional and supporting attitudes. It has however been a long time since a Swedish offshore case was last studied. Not only have changes in technical capacity and political ambition of offshore wind occurred since then, but there have also been changes in the climate, the energy system, energy technology, and the economic conditions of electricity production and consumption (IPCC, 2022; IRENA, 2021).

No study has, to the author's knowledge, previously been conducted on neither the Västvind project, nor of any offshore wind projects along the Swedish (North) West Coast. Neither has there been any Swedish case study that investigated the role of place attachment. With this thesis, the author hopes to contribute valuable findings of not just the relationship between place attachment in this specific case, but also give insight into the respondents' relationship with their place of home. With recent events especially affecting the public debate about the future of the Swedish electricity production and of the European energy system, this study can hopefully present interesting findings in this arguably unique time of energy planning and politics.

1.3 Purpose and research questions

The purpose of this thesis is to gain a deeper understanding of Öckerö municipality residents' views on the planned offshore wind park Västvind and its potential impacts, as well as to understand whether residents' general view of offshore wind energy, or their place attachment to their local area, relates to the social acceptance of the project. In a broader sense, the study aims to extend the literature on the complex social context of supportive and opposing attitudes of offshore wind energy developments. To realize these purposes, the thesis sets out to answer the following research questions:

RQ1: What are Öckerö municipality residents' attitudes to planned offshore wind park Västvind, and what impacts do they anticipate from the project?

RQ2: How do residents' general attitudes to offshore wind energy relate to their attitude to Västvind?

RQ3: Can residents' attitudes towards Västvind be explained through the concept of place attachment? If so, how?

2 Social acceptance

The following chapter introduces the theoretical framework of the thesis and connects the theory to the research questions. It starts off by shortly complementing the previous research chapter's review of social acceptance of wind energy with a theoretical background, followed by a presentation of place attachment and place-protective action.

Social acceptance of energy infrastructure and production has become a popular research area among social scientists (Azarova et al., 2019; Bout et al., 2021; Costa Pinto et al., 2021; Cousse, 2021; Devine-Wright, 2009, 2013; Devine-Wright & Howes, 2010; Devine-Wright & Wiersma, 2020; Galvin, 2018; Windemer, 2023). Social acceptance is usually defined in one of two ways. It either refers to the general, public opinion, or to the local community acceptance (Wüstenhagen et al., 2007). The focus of this thesis is the latter. Upham et al (2015) define (social) acceptance as

“a favourable or positive response (including attitude, intention, behaviour and – where appropriate – use) relating to a proposed or in situ technology or socio-technical system, by members of a given social unit (country or region, community or town and household, organization)” (Upham et al., 2015, p. 103)

Lundheim et al (2022) have identified three categories of aspects in the literature that impact whether a planned wind farm project has the potential for future community acceptance or not: psychological variables, contextual variables and personal resources. The contextual variables include the development context and the information environment, such as the planning process and social media activity. Personal resources relate to the income, place of residence and knowledge of the project. Other studies have found that opinion of wind energy can vary depending on demographic factors, such as gender (Westerlund, 2020), age (Ladenburg et al., 2020; Rogatka et al., 2017), and educational level (Cronin et al., 2021; Frantál et al., 2017). Lastly, the psychological variables include the perceived effects of wind energy, perceived climate of opinion, as well as environmental attitudes, emotions, and place attachment.

The theoretical framework applied in this thesis have taken inspiration from Lundheim et al (2022), primarily focusing on anticipated impacts from the planned wind farm, and residents' place attachment while also including demographic variables and data relating to several aspects of respondents' residency. Thereto, the respondents'

general view of offshore wind energy will be measured and compared to their opinion of Västvind.

Based on these focus areas, two sets of hypotheses are defined related to the respondents' anticipated impacts from Västvind and respondents' general attitude to offshore wind energy, and their relationship with respondents' attitude to Västvind.

Anticipated impact	H1 ₀ : There is no significant relationship between any of the respondents' anticipated impact aspects and their attitude to Västvind.
	H1 ₁ : There is a significant relationship between at least one of the respondents' anticipated impact aspects and residents' attitudes to Västvind.
Offshore wind energy	H2 ₀ : There is no significant relationship between the respondents' general attitudes to offshore wind energy and their attitudes to Västvind.
	H2 ₁ : There is a significant relationship between the respondents' general attitudes to offshore wind energy and their attitudes to Västvind.

2.1 Place attachment

The concept of place attachment has been studied across many disciplines and is especially popular within the research fields of disaster management and psychology (Adie, 2020; Greer et al., 2020; Jamali & Nejat, 2016; Scannell et al., 2016), tourism (L. Dwyer et al., 2019; M. J. Gross & Brown, 2008; Tsai, 2012; Vada et al., 2019), human geography (Adams, 2016; Barcus & Brunn, 2010; Du, 2017; Huang et al., 2020), and environmental psychology (Lewicka, 2011; Ratcliffe & Korpela, 2016; Reese et al., 2019). It has been showed to have impact on many aspects, from one's environmental behaviour (Daryanto & Song, 2021; Devine-Wright & Clayton, 2010; Vaske & Kobrin, 2001; Wang et al., 2023), to the forming of opinions about energy infrastructure (Boyd, 2017; Brown & Perkins, 1992; Devine-Wright, 2009, 2013; Devine-Wright & Batel, 2017; Ellis et al., 2016; Gonyo et al., 2021; Hou et al., 2019; van Veelen & Hagggett, 2016).

To grasp attachment to place, the concept of place needs to be understood first. Place is a multifaceted concept, and a central factor in human everyday life, well-being and behaviour (Halseth et al., 2010). While *space* describe a physical location that can be pin-pointed with geographic coordinates, *place* is constructed when space is experienced or perceived (Tuan, 1974). This way, a place is attributed values, meanings

and history (Ibid.) “through multiple, concurrent processes, including economic, social hierarchical relations [...] and biophysical factors” (Daniels et al., 2015, p. 25). Place is thus both a part of a space, as well as the “variety of meanings associated with that location by individuals or groups” (Devine-Wright, 2009, p. 427), and attachment to place is the emotional bond between people and their environments (Low & Altman, 1992). Unlike a temporary reaction to a landscape, place attachment is based on meaning rather than preference (Schroeder, 1991). It can be passed through generations through stories or memories from others (Backlund & Williams, 2004).

Place attachment have been theorised in many different ways (Bonaiuto et al., 1999; Devine-Wright, 2009; Hammitt et al., 2006; Lewicka, 2011). One of the more well-recognized conceptualisations is the two-dimensional interpretation of place attachment that is made out of place dependence and place identity (Williams & Roggenbuck, 1989). Place dependence is a functional attachment and is affected by a place’s practical possibilities to enable a person to do what they wish to do (Stokhols & Shumaker, 1981). If the place’s possibilities are matched with the individual’s wishes, their dependence on the place will increase. Place dependence is often built up over time and through frequency of associations with the place. Place identity contains rather the emotional and symbolic bond between the individual and a place. It incorporates “a host of attitudes, values, thoughts, beliefs, meanings and behavior tendencies” (Proshansky et al., 1983, p. 63), and becomes a part of how the individual see themselves, as well as how they want others to perceive them (Twigger-Ross & Uzzell, 1996).

Place change

The way people feel about a place will impact their opinion about changes to it (Haggett, 2011), and sometimes it is even the potential for change itself that first make people aware of the extent of their own attachment to said place (Brown & Perkins, 1992). When change occurs to a place that people are attached to, it can cause disruption to their place attachment (Devine-Wright, 2009), and sometimes just imagining the loss of place characteristics can have a similar effect (Reese et al., 2019). Consequently, people with strong place attachment are more likely to feel threatened by place change (Devine-Wright & Howes, 2010), perceive place change negatively (Anton & Lawrence, 2016) and take action against it (Clarke et al., 2018). If an energy project is seen as out of place, or as disturbing a space that is otherwise considered “natural”, residents with strong place attachment are more likely to oppose it (Devine-Wright & Howes, 2010; McLachlan, 2009; Vorkinn & Riese, 2001). Likewise, strong place attachment has been showed to increase the likelihood for opposition being based on primarily aesthetics (Devine-Wright & Howes, 2010). People with strong place attachment can also be expected to be more interested to learn about planned local changes. Contrary, people with weak or negative attachment to a place might “feel less

motivated to engage with proposed changes and more indifferent about the outcomes” (Devine-Wright, 2009, p. 434).

Having strong place attachment does not however mean that one is intrinsically opposed to place change. The reaction to change depends on the type of attachment, type of change and how that change is interpreted. For example, when the attachment is to the community rather than to the environment itself, the possible enhancement of the local community can cause people with strong place attachment to support changes that are good for the community, even if they don’t consider the changes to be improving the environment (Hidalgo & Hernández, 2001). Likewise, when changes are seen as place enhancing, high place attachment can be correlated with support of changes (Devine-Wright, 2009). A person can have attachment to different places, on different levels, and to different aspects of that place. For example, the relative differences in attachment to the local, national and the global can affect a person’s attitude to certain energy infrastructure (Devine-Wright & Batel, 2017).

Place-protective action has been suggested as an alternative explanation to the so called Not in my Backyard-syndrome (NIMBY) (Devine-Wright, 2009). NIMBY has been continuously tested and criticized within social acceptance research (Devine-Wright, 2005, 2009, 2013; van der Horst, 2007; Wolsink, 2000), but the use of the phrase is still widespread. The NIMBY-syndrome sets out to describe the inconsistency of a widespread general support and local resistance. It has been criticised for simplifying oppositional attitudes, and critics have instead stressed the importance of seeing the complexity of social acceptance and to not draw conclusions about the reasoning behind potential opposition (Aitken, 2010). There are also cases when the use of NIMBY-rhetoric against oppositional arguments have harmed the relationship between industry actors and local communities (Burningham et al., 2015).

The research on place attachment is hypothesised as follows.

- Place attachment
- H3₀:** The respondents’ level of place attachment to Öckerö municipality do not have any significant effect on the respondents’ attitudes to Västvind.
 - H3₁:** There is a significant relationship between respondents’ level of place attachment to Öckerö municipality and their’ attitudes to Västvind.

3 Methodology

In the following chapter, the methodology of the research design is presented. First, the different stages of the process are introduced, including the preparatory expert interviews, survey design and operationalization, survey distribution, and data analysis. Thereafter follows a section on the limitations of the study and an ethical reflection.

3.2 Preparatory expert interviews

The interviews were conducted to gain a deeper understanding of the project process, and the reactions and arguments used by residents, stakeholders, and municipal politicians in favour of, and in opposition to the project. This information was used to describe the Västvind project in the thesis, and as basis for developing the survey questions and statements. The interviews were semi-structured which enables the combination of a general structure and a flexible interview strategy that allows spontaneous follow-up questions (Brinkmann, 2020). This was beneficial as the interview could naturally follow the direction of the conversation and include related subjects that was not initially included in the interview guide. The interviews were conducted in Swedish.

The first preparatory expert interview was conducted with Matilda Svensson, project manager for the Västvind project at Eolus Vind. The interview with Matilda Svensson was conducted at the Eolus office in Gothenburg on the 27th of February (M. Svensson, personal communication, February 27, 2023). The second interviewee is a municipal employee who worked with the wind energy project in Öckerö municipality. They have chosen to not include their name or title in the thesis, due to the sensitive character of the wind energy project in the municipality. The interview focused on the municipal reaction and political discussion of the 2021/2022 delimitation consultation process³. The interview was carried out on Zoom on the 1st of March 2023 (Öckerö municipality employee, personal communication, March 1,

³ *Avgränsningssamråd* in Swedish.

2023). The interviews were recorded and transcribed, and the recordings were later removed in accordance with the consent request information.

3.3 Survey design and operationalization

For the development of the survey, key theoretic concepts have been operationalized into measurable indicators. These include concepts such as attitude to Västvind project, general view of offshore wind energy, and place attachment to Öckerö municipality. The contents of the survey are summarized below. The complete English translation of the survey is available in [Appendix B](#).

Table 1 Survey content by category

Content of survey	
Category	Explanation
Individual characteristics	Gender, Age, Education, Income, Occupation, Ocean-relevant occupation, Living distance from planned site, Year-round or Seasonal resident, Registered in municipality etc.
General opinion of offshore wind energy	Relating attitudes of wind energy technology to attitudes to local wind farm.
Anticipated impact from Västvind on aspects	Ocean view, the municipality's climate impact, employment, pride of municipality, tourism, regional energy supply, house prices, fishing industry, local energy supply, local ecosystem.
Place attachment	Twelve item Likert-scale based on Williams and Vaske's (2003) questionnaire.

The study was aimed at adult (≥ 18 years) residents of Öckerö municipality. The exclusion criteria were built into the online survey. Firstly, all respondents were informed about the criteria. If a respondent still stated that they were not residents of the municipality, they were informed that they were not a part of the relevant population of the study and thanked for their time. Similarly, respondents that stated that they were younger than 18 were informed again about the respondent criteria.

The survey consists of three parts:

1. Demography and introductory questions,
2. Attitudes to offshore wind energy and the Västvind project, and
3. Place attachment.

3.3.1 Survey section 1: Demography and introductory questions

The first part of the survey is focused on demographic and introductory questions. The information is used to give an overall grasp of the sample characteristics, as well as to control for the impact of demography and residence in the regression analysis. The questions of this first section of the survey include the age, gender, income, occupation, and educational background of the respondents. Several questions about residency were also included, such as whether the respondents live year-round or seasonally in the municipality, how long they have lived in the municipality, and in which area they live i.e., how far from the planned wind farm they live. This was measured through a map including eight zones based on approximates of distance from the planned wind farm area, using coordinates from Eolus' delimitation consultation (Eolus, 2021a) and measuring distances with Lantmäteriet's (Swedish Land Surveyor Office) online tool (See [Appendix B](#) for full survey).

3.3.2 Survey section 2: Attitudes to offshore wind energy and Västvind

When moving on to the following survey section, the respondents are introduced to a short paragraph with basic information about the Västvind project, followed by the related questions. Social acceptance was operationalized into attitude scales ranging from Very negative to Very positive.

The respondents were first asked about their view of offshore wind energy in a future energy system, on a 9-point Likert-type scale where 1= Very negative, 5= Neither positive nor negative, and 9= Very positive. This question is used to understand the residents' general support for offshore wind energy, and to compare it to the support for the Västvind project. The following question asks about their view of Västvind on the same 9-point scale. The respondents also had the opportunity to comment their attitudes on both questions.

Thereafter, the survey presents ten aspects that could potentially be positively or negatively affected by the wind farm. The aspect list was based on the aspects that residents and stakeholders have previously mentioned according to the two preparatory expert interviews (Öckerö municipality employee, personal communication, March 1, 2023; M. Svensson, personal communication, February 27, 2023), as well as from the statements from municipal political parties (Brauer & Bryngelsson, 2022; Lanne,

2022; Vidlund & Utbult, 2022), and from previous offshore cases (Gibbons, 2015; Joalland & Mahieu, 2023; Teisl et al., 2015; Waldo & Klintman, 2010). The aspects are listed in Table 2 below.

Table 2 List of aspects potentially impacted by Västvind.

List of aspects

Aspect	Source	(Selected) references
Ocean view	Interview Eolus	(personal communication, February 27, 2023)
	Interview Öckerö municipality	(personal communication, March 1, 2023)
	Socialdemokraterna's statement	(Brauer & Bryngelsson, 2022)
The municipality's climate impact	Miljöpartiet's statement	(Lanne, 2022).
Employment opportunities in municipality	Previous research cases	(Joalland & Mahieu, 2023; Waldo & Klintman, 2010)
Pride of municipality	Interview Eolus	(personal communication, February 27, 2023)
Tourism in the municipality	Interview Eolus	(personal communication, February 27, 2023)
	Interview Öckerö municipality	(personal communication, March 1, 2023)
Regional energy supply	Interview Eolus	(personal communication, February 27, 2023)
House prices in the municipality	Previous research cases	(Gibbons, 2015; Teisl et al., 2015)
Fishing industry in the municipality	Interview Eolus	(personal communication, February 27, 2023)
	Interview Öckerö municipality	(personal communication, March 1, 2023)
	Socialdemokraterna's statement	(Brauer & Bryngelsson, 2022)

Local energy supply	Interview Öckerö municipality	(personal communication, March 1, 2023)
	Miljöpartiet's statement	(Lanne, 2022).
Local ecosystems	Interview Eolus	(personal communication, February 27, 2023)
	Interview Öckerö municipality	(personal communication, March 1, 2023)
	Miljöpartiet's statement	(Lanne, 2022).

The survey respondents rated their anticipated extent of the impact from the wind farm on each aspect on a scale from 1-9 where 1= Very negative, 5= No impact, and 9= Very positive. The order of the aspects was randomized for each respondent. In addition to the listed aspects, respondents also had the possibility to add additional aspects in a free-text answer, and whether the impact on that aspect would be negative or positive.

Both the aspects *Local energy supply* and *Regional energy supply* were included although there is no technical system limit between the local and regional electricity system and market. There were however two different portrayals of the impact of a changed energy supply evident in the preparatory research. The impact on regional energy supply regards the possibility to contribute with additive electricity supply to the energy system, while the impact on the local energy supply relates to how Öckerö municipality could help produce electricity that would cover their own consumption, thereby balancing and taking responsibility for their own demand.

3.3.3 Survey section 3: Place attachment

The place attachment of the respondents is measured through a Likert-scale. A Likert-scale is a set of similar items used to measure attitudes, often in the form of choosing to which extent they agree with a statement (Likert, 1932). A Likert-scale is suitable for measuring latent variables, i.e., concepts that are difficult to measure directly (Joshi et al., 2015). Instead of simply asking *What is your place attachment to X?* a set of Likert-items deconstructs the concept into more easily measurable aspects of that same concept.

Measuring this type of concept is more difficult than for example to gather information about someone's age, or even their opinion. This intrinsically has effects on the internal validity of the study. By using previously tested and evaluated Likert-

items to measure place attachment, it could be argued that the internal validity is partly strengthened.

For the measurement of place attachment for this thesis, a set of statements focusing on the respondent's relationship with the place was formed, with which the respondent can choose to which extent they agree. The operationalization of place attachment was based on Williams and Vaske's (2003) measurement scales. They measured visitors' place attachment to recreational locations, and identified twelve statements that were used in a Likert-scale. For the application of this study, the original statements have been changed in three ways.

1. The statements were adapted from a recreational location context to capturing attachment in a residential setting. One of the statements was exchanged due to difficulties in adapting it to a residential context in a relevant way.
2. The statements were translated from English to Swedish.
3. The order of two of the statements were reversed from confirming place attachment to rejecting place attachment, in order to reduce potential acquiescence response bias, i.e. the tendency to agree with a statement indifferent to its content (Nunally, 1978).

A complete list of original statements, adaptations and translations are available in [Appendix A](#). The likeness between the statements is crucial for them to be used as parallel instruments. Thus, the inter-relatedness of the items is assessed by calculating the Cronbach's alpha, a measurement of internal consistency and indication of the reliability of the scale (Cronbach, 1951).

3.4 Survey distribution

The survey data was collected using convenience sampling, with the survey being distributed through online and physical billboards directed towards the island communities. The online forums consisted of five Facebook groups functioning as online billboards for the local community. In total, seven online groups were identified, and the survey was approved for sharing in five groups by the group admins. Two of these groups were targeted at the entire municipality and three was targeted at the communities of specific islands. In total, the groups where the survey was shared had over 17 000 (non-unique) members. Facebook-users can be members of several of the groups at the same time, and members don't always have to be residents of the islands, if they can motivate their connection to the area when submitting their membership request. Not every member is likely to see the posted information.

In addition to the online platforms, information about the survey was also distributed through 19 physical billboards on the Öckerö municipality islands, in locations such as local food stores, ferry stations, harbours, sport venues, the library and along nature paths. The information leaflets contained the link and a QR-code directing the respondents to the online survey.

Convenience sampling, specifically self-selection sampling, tends to create a strong interest-bias, where respondents only participate if they have strong opinions off the studied subject (Bowden, 1986). This have impacts on the external validity of the study. Further discussion on this topic in [5.2 Methodological discussion](#).

3.5 Data analysis

In total, 154 respondents answered the survey. The distribution of the sample compared to the studied population is unknown due to the small sample size and the non-probability sampling method. Therefore, only non-parametric tests and statistical analysis methods is used to analyse the data. Non-parametric tests do not assume the normality of the data and focus on the order rather than the value of the data, making it appropriate for the collected survey data (Quader Miah, 2016).

The data analysis was conducted using Stata 17 (*Stata Statistical Software: Release 17*, 2021) and included univariate, bivariate and multivariate analysis. Relationships between independent variables and the dependent variable *Residents' attitudes to Västvind* were calculated through Spearman's rho (Spearman, 1904) and Ordinal Logistic Regression (McCullagh, 1980). Free text-answers were used to exemplify patterns in the data, and to analyse the reasonings behind attitudes and anticipated impacts. All citations from the survey that are included in the thesis have been translated from Swedish.

3.5.1 Likert-scales and Likert-type items

The concepts measured using Likert-scales and Likert-type items in the survey are resident's opinion of Västvind and their anticipated impact on aspects from Västvind, their general opinion of offshore wind energy, and place attachment. The Likert-scales and Likert-type items will be treated as ordinal variables, as the categories have a natural order but is not equidistant (Stevens, 1946). The median value of the place attachment Likert-scale was calculated for each respondent, creating a place attachment scale where respondents could score from 1-9.

For the regression analysis, the anticipated aspect variables and the two attitude variables were collapsed into individual 3-category scales. Attitude to Västvind was collapsed into Negative (1-4), Neutral (5), and Positive (6-9), as were general view of

offshore wind energy. Anticipated impacts from Västvind were collapsed into Negative effect (1-4), No effect (5), and Positive effect (6-9). This choice is motivated primarily by how it makes the interpretation of the result more intuitive, as the odds change for a change in y when a one-unit increase occurs in x is more pedagogical when the categories are fewer i.e., moving from Negative to Neutral or Positive, rather than from 1 to 2 or higher on a 9-item scale.

The Spearman's rank correlation formula (Spearman, 1904) was used to assess the association between independent variables and residents' attitude to Västvind. The method is appropriate for ordinal variables and non-parametric data and indicates to which degree there is a monotonic relationship between variables.

3.5.2 Ordinal logistic regression

The ordinal logistic regression is a non-parametric regression analysis model that calculates the relationship between independent variables and an ordinal response variable (Kleinbaum & Klein, 2010). The main assumption underlying the model is the proportional odds assumption. This assumes that the coefficient is the same for each set of outcome groups. The intercepts are different for each category, but the odds ratio between, for example, the lowest category of the response variable and all higher categories is the same as the relationship between the lowest category in combination with the next lowest category and all higher categories. Thus, only one model and one set of coefficients are needed, if the assumption holds (Kleinbaum & Klein, 2010, p. 468).

The data was tested for multi-collinearity through a Variance Inflation Factor-test (VIF), followed by a Brant-test for testing the proportional odds assumption (Brant, 1990). The Brant testing indicated that the assumption did not hold for one of the independent variables, residents' anticipated impact on *Employment* from Västvind, or for three of the covariate variables (*Income*, *Occupation*, and *Ocean-related occupation*). Thus, the variables were excluded from the model and the tests were repeated. The highest VIF-value among the variables was 3.42 and the mean value of the variables was 2.19. VIF-values above 10 indicates a serious collinearity problem, and VIF-values above 5 is considered a cause for concern (Menard, 2001). For the Brant-test, all independent variables had P-values well above the threshold of $p > .05$. The tests results are summarized in Table 3.

Table 3 Variance Inflation Factor and Brant test results for Ordinal Logistic Regression input data.

Data tests for multi-collinearity and proportional odds assumption				
	Variable	VIF	Brant (chi2)	P-value
	All	2.19 (mean)	4.98	.998
	Place Attachment	1.21	1.63	.201
	Attitude offshore wind	3.12	0.00	.964
Anticipated impact aspects	Ocean view	2.25	1.66	.197
	Climate	2.63	0.28	.594
	Pride	3.17	3.03	.082
	Tourism	3.26	0.22	.638
	Regional Energy Supply	3.42	0.67	.414
	House prices	2.21	0.01	.914
	Local Energy Supply	2.85	0.75	.387
	Fisheries	3.00	0.01	.913
	Ecosystem	2.75	0.16	.690
	Covariates	Gender	1.26	0.06
Age		1.36	1.30	.255
Education level		1.25	0.63	.428
Residence type		1.16	0.01	.915
Length of residence		1.24	1.58	.209
Distance to Västvind		1.13	0.13	.720

3.7 Ethical reflection

The following chapter presents an ethical reflection about four aspects of the thesis. These are the preparatory expert interviews, the survey, avoiding misunderstandings in a polarized context, and the collaboration with Göteborg Energi.

Preparatory expert interviews

The interviewees were contacted through email and informed about the thesis project. After discussing the conditions for the interview, followed by requested adjustments to the participants' level of anonymity, a request for an informed consent was sent to the participants through email. It included information about the purpose of the study, how the interview material and their personal information will be used, their level of anonymity, the terms for the recording of the interview as well as information about their voluntary participation which they can end at any point without explanation. The interviewees sent a written consent prior to the interview. The information was conveyed in Swedish.

Survey

Four requirements of ethical survey research has been identified by Ejlertsson (2019). These are the requirements of information, consent, confidentiality, and data utilization.

The information requirement entails that the survey respondents should be informed about the study, its purpose, what the results will be used for, and that it is entirely voluntary to participate. Consent refers to respondents' right to decide by themselves whether they want to participate or not. The information requirement was met by introducing the study, conditions for participation, anonymity, how the data will be handled and what the results will be used for, at the beginning of the survey. Before starting the survey, respondents were asked for their consent of participation and informed that they could remove their consent at any time during the fill-out of the survey without any data being saved or used afterwards. See [Appendix B](#) for the full survey (English translation).

Confidentiality requires that no individual participant is identifiable, and that no unauthorised people have access to information about individual respondents' identities. The utilization requirement refers to how the data should be utilized. It should only be used for the stated purpose of the survey. The respondents of this survey are not identifiable from their answers. No survey data is handled by or shared with unauthorised persons, and the data is only used to fulfil the stated purpose of the survey.

Avoiding misunderstandings

As the project is already a polarized topic in the municipality (Öckerö municipality employee, personal communication, March 1, 2023), it is particularly important to make sure that survey respondents are presented with relevant, correct, and updated information about the project and the permit process. For example, a short paragraph with information about the Västvind project is included in the survey before the

respondents answer questions about it, to highlight that it is still in the planning phase and that a delimitation council has been carried out, as well as that the project will need the endorsement of the municipality before it can be realized. On information leaflets and Facebook-posts about the survey, it has continuously been described as a *planned* offshore wind farm.

Collaboration with Göteborg Energi

This thesis has been written in collaboration with Göteborg Energi. Both interviewees and all survey respondents were informed about this prior to their participation. The focus and design of the thesis was developed independently from Göteborg Energi, but with access to resources such as organizational knowledge about the energy system and industry discussions on offshore wind deployment. It should however be noted, in accordance with the Swedish Research Council's recommendations (2017), that Göteborg Energi publicly support and encourage further development of offshore wind energy in Sweden and in the region.

4 Results & Analysis

The following chapter starts off with a presentation of the sample characteristics, followed by a presentation of the descriptive statistics of the analysis. These include an overview of the sample's attitudes to the Västvind project, anticipated impacts, general view of offshore wind energy, and their place attachment. Thereafter, the result from the Ordered logistic regression is introduced. The chapter includes the statistical results, matched with elected qualitative comments, and analysis of the results. All included comments are translated from Swedish.

4.1 Sample characteristics

In total, 154 respondents were included in the sample. Respondents who were not residents of Öckerö municipality or who were younger than 18 years old were excluded. Table 4 below presents the demographic characteristics of the survey respondents, as well as the residence-related aspects that were measured in the survey.

Table 4 Sample characteristics

Variable	Elements	Frequency	Percentage
<i>Demography</i>			
Gender	Woman	73	47.40
	Man	80	51.95
	Do not want to answer	1	0.65
Age group	<20 years	1	0.65
	20-29 years	6	3.92
	30-39 years	12	7.84
	40-49 years	19	12.42
	50-59 years	45	29.41
	60-69 years	38	24.84
	>70 years	32	20.91
	<i>Missing values</i>	1	0.65
Educational level	Elementary school	5	3.25
	Upper secondary school (≥ 2 years)	9	5.84
	Upper secondary school (3 years)	16	10.39
	Post secondary education (≥ 3 years)	45	29.22
	Post-secondary education (>3 years)	72	46.75
	Postgraduate education	7	4.55
Gross yearly income	Below 200 kSEK	15	10.14
	200-399 kSEK	39	26.35
	400-599 kSEK	54	36.49
	600-799 kSEK	25	16.89
	800-999 kSEK	6	4.05
	1000 kSEK and over	9	6.08
	<i>Missing values</i>	6	4.05
Occupation	Employed in public sector	36	23.38
	Employed in private sector	52	33.77
	Entrepreneur	17	11.04
	Unemployed	1	0.65
	Student	4	2.60
	Retiree	42	27.27
	Other	2	1.30
Ocean-related occupation	Yes	23	14.94
	No	131	85.06
<i>Residency</i>			
Residency type	All year	143	92.86
	Parts of the year	11	7.14
Length of residence	Less than 1 year	6	3.90
	1-2 years	6	3.90
	3-5 years	9	5.84
	6-10 years	16	10.39
	11-20 years	23	14.94
	More than 20 years	94	61.04
Distance from residence to Västvind (<i>approximate</i>)	ca ≤ 16 km	3	1.96
	ca 16-17 km	5	3.27
	ca 17-18 km	5	3.27
	ca 18-19 km	31	20.26
	ca 19-20 km	65	42.48
	ca 20-21 km	27	17.65
	ca 21-22 km	16	10.46
	ca 22-23 km	1	0.65
	<i>Missing values</i>	1	0.65

n=154

4.2 Descriptives

4.2.1 Attitudes to Västvind

The 154 surveyed residents demonstrated strong attitudes to the Västvind project, with the two most frequent answers being *Very Positive* (9) and *Very Negative* (1). In total, 102 out of 154 respondents (66,2%) stated positive attitudes towards Västvind (alternatives 6-9), and 41 respondents (26,6%) stated negative attitudes (alternatives 1-4). 11 respondents (7,14%) are neutrally disposed to the project.

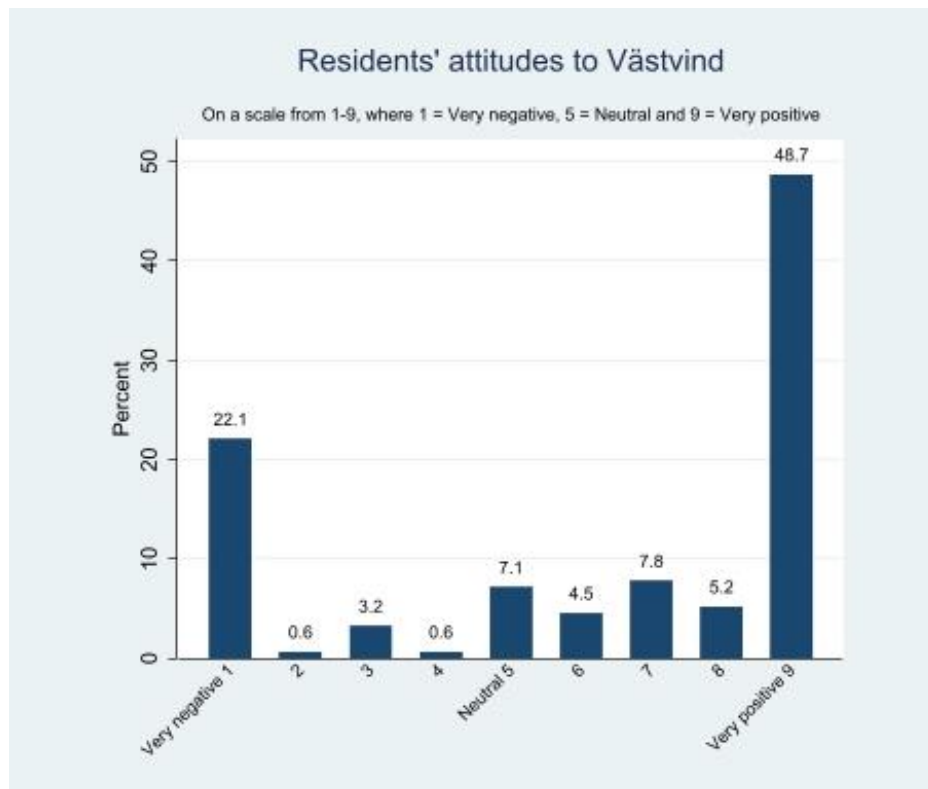


Figure 2 Residents' stated attitudes to offshore wind farm Västvind on a 9-point scale from Very negative to Very positive.

The general polarization of attitudes to the project is also evident in the distinction between different qualitative survey answers:

“It’s perfect to put it out on the sea where it won’t ‘disturb’ anyone compared to on land [...]”

“The worst invention they’ve come up with to build on our coast.”

4.2.2 Anticipated impacts from Västvind

The respondents’ anticipated impacts from Västvind differs widely between the listed aspects. However, for all aspects it is evident that most respondents chose either any of the most extreme values *Very negative* (1) and *Very positive* (9), or the *No impact* (5) alternative. For six of the aspects, most residents did not anticipate any impact.

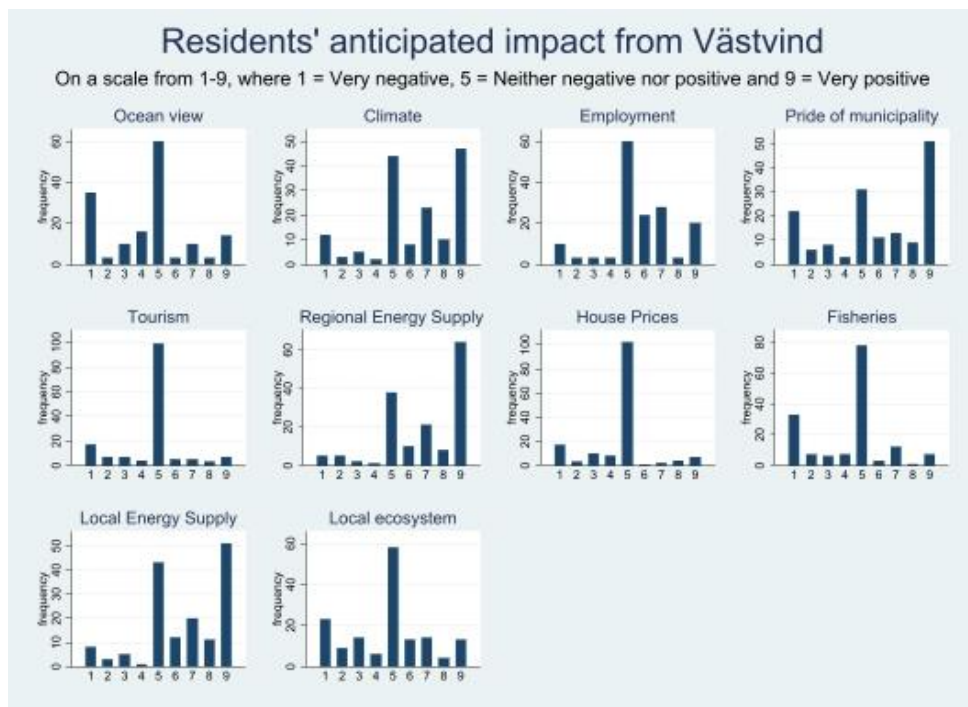


Figure 3 Bar graphs of residents' anticipated impacts from Västvind on aspects, on a 9-point scale from Very negative to Very positive.

Most respondents anticipated a negative impact on the ocean view, no impact on tourism, fisheries, house prices and ecosystems, and a positive impact on the municipality's climate impact, employment, pride of municipality, and on the regional, as well as the local, energy supply. The difference between positive and negative impact anticipations were lowest for local ecosystems, pride of municipality, and ocean view.

Table 5 Share of residents' anticipated impacts from Västvind on aspects on a 3-level scale of Negative impact, No impact, and Positive impact.

Anticipated impacts from Västvind			
Aspects	Negative	No impact	Positive
Ocean view	<u>41.56%</u>	38.96%	19.48%
Climate	14.29%	28.57%	<u>57.14%</u>
Employment	12.34%	38.96%	<u>48.70%</u>
Pride	25.32%	20.13%	<u>45.45%</u>
Tourism	22.73%	<u>64.29%</u>	12.99%
Regional energy supply	8.44%	24.68%	<u>66.88%</u>
House prices	24.68%	<u>66.23%</u>	9.09%
Fisheries	34.42%	<u>50.65%</u>	14.94%
Local energy supply	11.04%	27.92%	<u>61.04%</u>
Ecosystems	33.77%	<u>37.66%</u>	28.57%

Other impacts that respondents mentioned in the free-text answers included noise and light disturbances, as well as negative impacts on quality of life. Most common among the additional aspects were those that related to ownership and concerns about the potential of other actors having control over local resources and/or processes.

“The ownership of the farm is important to me. A stable Swedish ownership such as government/municipality or alternatively a more collective ownership by Swedish consumers would be a condition for me. Ownership by foreign interests/risk capitalists is something I consider highly inappropriate [...]

“[...] ownership of offshore wind energy should be kept within Europe. It's dangerous if China acquires more ownership of our fundamental infrastructure.”

“It would once again let Öckerö municipality be overrun by Gothenburg municipality”

“Governemnt intervention in local issues. The state should stay away from Öckerö municipality”

All anticipated impact aspects were shown to have statistically significant, strong, positive correlations with attitude to Västvind. Of all the aspects, impact on ocean view and employment both have the lowest correlation statistic of $r_s = 0.59$ ($p = .000$), and impact on regional energy supply and on pride have the highest of $r_s = 0.77$ ($p = .000$) and $r_s = 0.71$ ($p = .000$) respectively. The overall correlation between anticipated impact (median value) and attitude to Västvind is also statistically significant and strongly positive, with $r_s = .72$ ($p = .000$).

Table 6 Spearman’s correlation table of Västvind attitudes and anticipated impact aspects (9-point scales from Very negative to Very positive).

Correlation - Attitude to Västvind and anticipated impacts		
Aspects	Sperman's rho	P-value
Ocean view	.5943	.000
Climate	.6574	.000
Employment	.5911	.000
Pride	.7136	.000
Tourism	.6178	.000
Regional energy supply	.7749	.000
House prices	.6544	.000
Fisheries	.6834	.000
Local energy supply	.6966	.000
Ecosystems	.6789	.000
All (median)	.7212	.000

In the free text-answers, several Västvind supporters mentions energy supply as the motivation behind their attitudes.

“If we’re going to use an increased amount of energy, as consistent with today’s way of life, it’s just a fact that this is needed.”

“We need a lot more wind energy, everyone must take part, be positive and see opportunities. You can’t say ‘yes, but not here’, or there will be no energy production anywhere.”

“You can’t just expect the electricity that you consume to be produced somewhere else. Who really wants the rivers where you have fished for generations to be clogged up by hydropower [...]? If we want to transition to a sustainable society with a high electricity consumption, everyone must contribute. [...]”

Several opponents motivate their attitude with arguments about the local fishing industries and the environmental impact of Västvind.

“It hurts the coastal fishing”.

“It counteracts the small-scale fishing industry in the area. There should be other areas that can be utilized in dialogue with the fishermen.”

“Sad to destroy the North Sea in this way”.

“Environmental issues during and after construction”

“[...] Västvind is an environmental disaster”

Respondents with negative attitudes generally anticipate more negative impacts than supporters. The results in Figure 4 show the results from comparing residents’ anticipated impact estimations with their attitude to Västvind on the collapsed three-level scales (*Negative*, *Neutral*, and *Positive*). The different aspects have differing patterns and there is no clear linear relationship between the variables. However, several of the graphs show a pattern where respondents that anticipated negative impacts are also negative to Västvind, while respondents that anticipate no or positive effects are positive. The supporting respondents are more often divided between impact estimations.

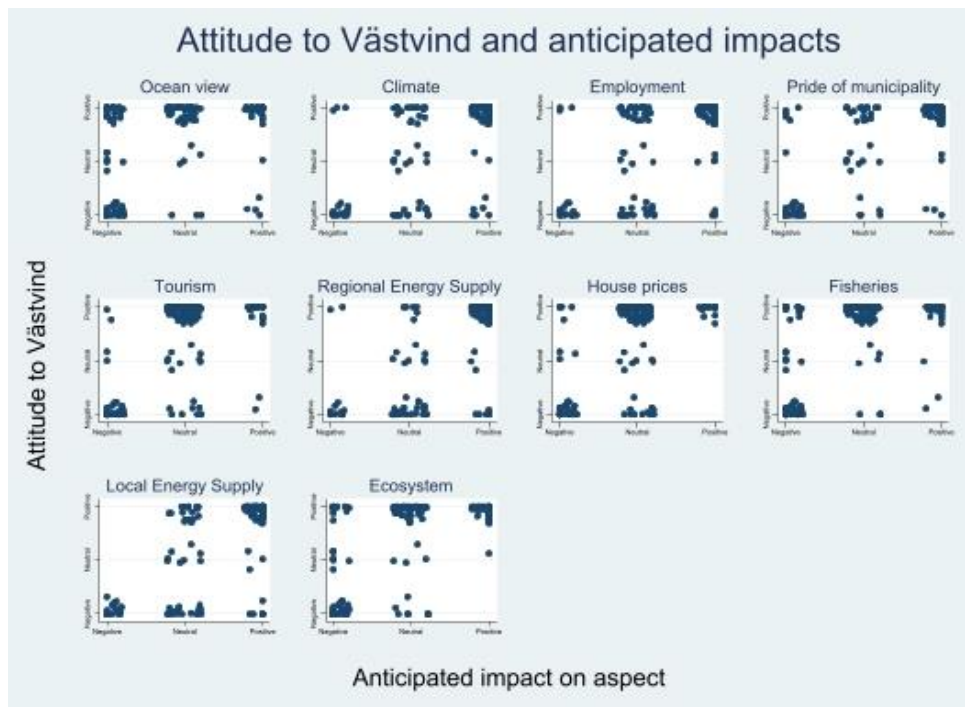


Figure 4 Plot graph of Västvind attitudes and anticipated impact on aspects on 3-level scales (Negative, Neutral, Positive).

For almost all aspects, the number of respondents that have stated a negative answer for both variables is quite constant. A similar, but less evident, pattern is present for respondents that have stated a positive answer for both aspects. A majority of those who are negative to Västvind also anticipate a negative impact from the project for almost all aspects. However, a large part of respondents that anticipated a negative impact on the ocean view are positive to the project. This tendency is motivated by several respondents in the free-text answers.

“Everyone must contribute, even if that means making my view a bit uglier”.

“We need to find new ways to get energy. A bit of ruined view is easily worth the price.”

While most residents that are negative to Västvind tend to have anticipated negative impacts, most of the residents that are positively disposed to Västvind have median values that indicates that they have anticipated both negative and positive impacts, or no impacts.

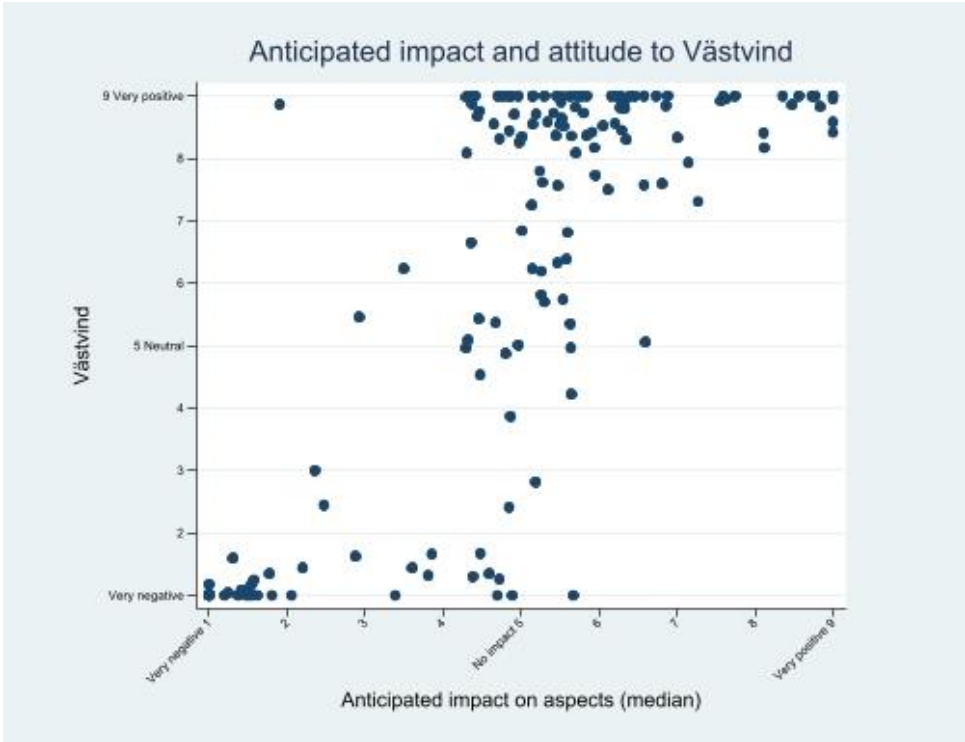


Figure 5 Scatterplot of anticipated impact median and attitude of Västvind (9-point scales from Very negative to Very positive).

4.2.2 General opinion of offshore wind energy

Similar to the result of respondents’ attitudes to Västvind, around half of all respondents answered *Very positive* (9) to the question “What is your opinion of offshore wind energy in a future energy system?”, followed by 18.2% of respondents that answered *Very negative* (1). Less than 10% considered themselves neutral to the question. In total, 68.8% of respondents were positive (6-9), and 24.0% were negative (1-4) to offshore wind energy in a future energy system (See Figure 6).

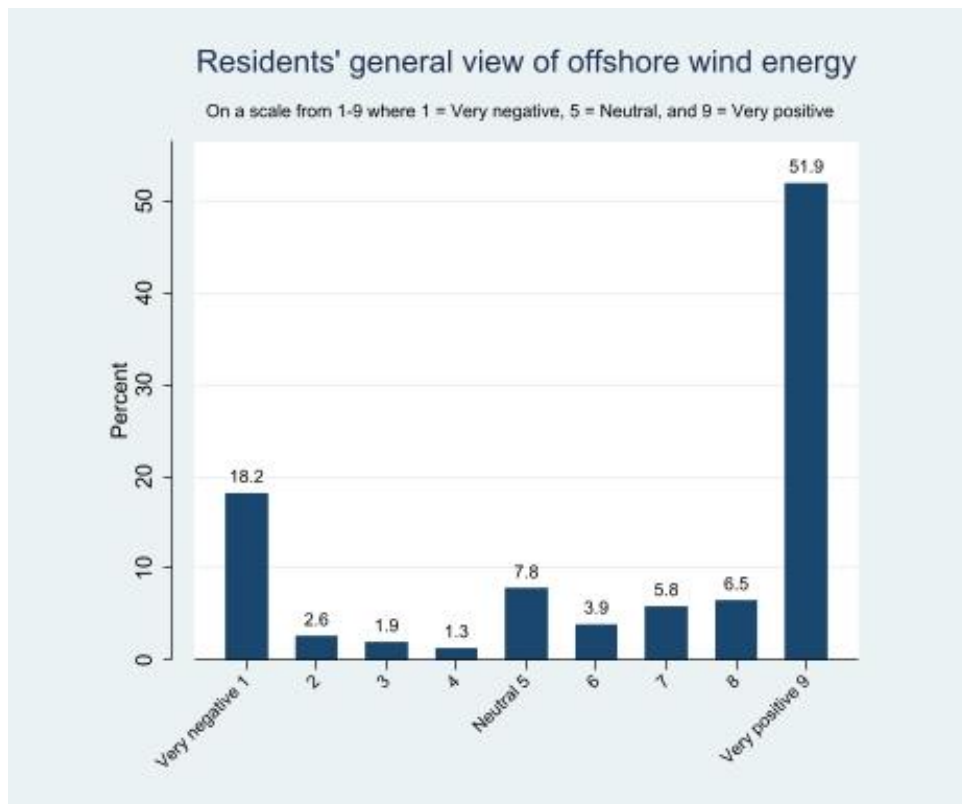


Figure 6 Residents' general view of offshore wind energy.

The respondents' attitudes to offshore wind energy bar many similarities with their attitudes to Västvind. The difference in percentage points between the negatives is 2.6%, 0.7% for the neutrals, and 2.6& for the positives. Between the most frequent answers *Very positive*, the difference is 3.2% and between the *Very negative* answers it is 3.9%. Among the free-text answers, there are several comparisons to other energy sources. These include comments where alternative energy sources are preferred.

“There are infinite roof top areas for solar energy.”

“I hate wind turbines, I want nuclear energy!”

As well as comments where wind energy is preferred over specifically nuclear energy.

“[...] personally, I would rather see wind turbines in my area than a nuclear power plant.”

“Rather wind energy than nuclear energy [...].”

Several of the respondents comment on the variability of wind energy production.

“Wind energy destabilizes the energy system [...].”

“I’m positive IF there is enough nuclear power or hydropower to outweigh the wind energy. Otherwise, I am very negative.”

When the respondents’ view of offshore wind energy is compared to their attitude to Västvind in a scatterplot, it becomes clear that many of the respondents that have answered *Very negative* (1), or *Very positive* (9), to one of the questions, have answered the same on the other (See Figure 7). Only a few respondents are positive to offshore wind but negative to Västvind, indicating that the specific project is not necessarily the reason for opposition. The Spearman’s rank correlation between the two variables showed a strong positive and statistically significant correlation between attitude to offshore wind energy and to the Västvind project ($r_s = .9087$, $p = .00$). However, a few of the respondents that oppose Västvind do not oppose all offshore wind energy projects:

“Feel free to build it, but not here. But I do want a wall socket with electricity.”

“It ruins the best of Sweden’s only island municipality. Wind energy is good but put it in a place where it doesn’t affect the people, please.”

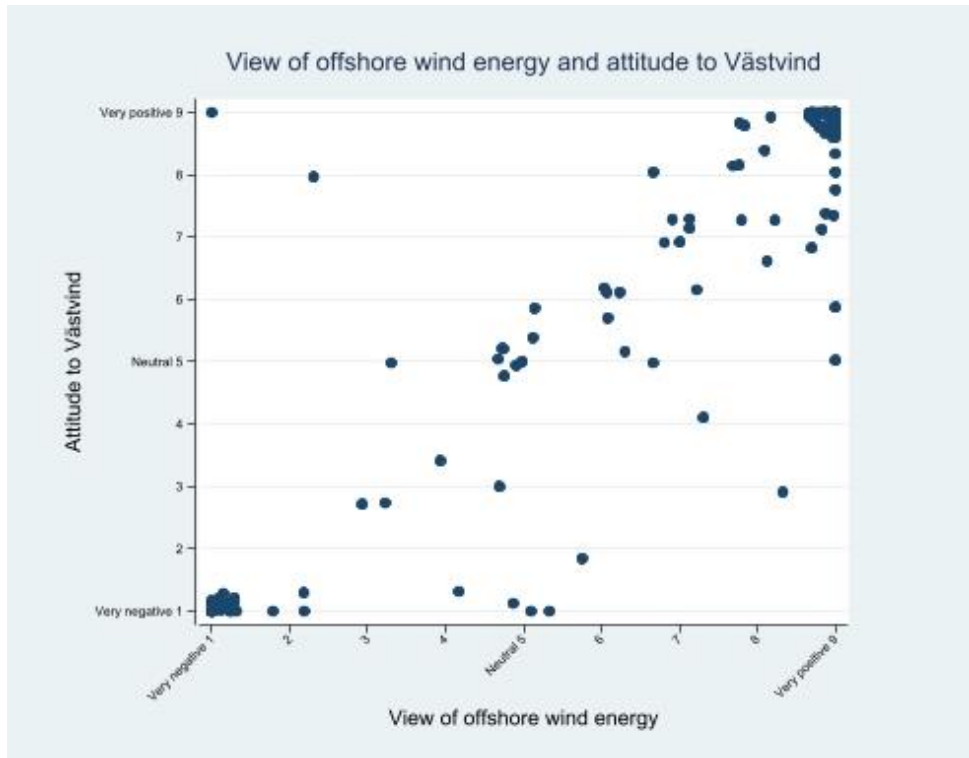


Figure 7 Scatterplot of residents' general view of offshore wind energy and attitude to Västvind.

4.2.3 Place attachment

Before the Spearman's rank correlation between the place attachment scale and respondents' attitude to Västvind was calculated, the interrelatedness of the place attachment Likert-items was tested by calculating the Cronbach's alpha of the scale. The alpha was high for all items, and $\alpha = .9158$ for the full scale (See Table 5). The Likert-items were recoded into a place attachment scale, where respondents median value of all Likert-items constituted their overall place attachment score. Higher values indicate higher place attachment, and lower values indicate a lower place attachment on the scale from 1-9. The median values were calculated after the two inverted Likert-items were redirected to follow the same direction as the rest.

Table 7 Cronbach's alpha results of place attachment scale.

Cronbach's alpha					
	Item	Item-test correlation	Item-rest correlation	Average interim covariance	alpha
Place identity	1	0.8169	0.7745	2.140203	0.9038
	2	0.7365	0.6931	2.279028	0.9087
	3	0.8128	0.7727	2.168875	0.9044
	4	0.7085	0.6417	2.193628	0.9096
	5	0.7617	0.6977	2.113433	0.9071
	6	0.4584	0.3762	2.409279	0.9195
Place dependence	1	0.8165	0.7744	2.142972	0.9039
	2	0.7195	0.6442	2.136876	0.9100
	3	0.6855	0.6262	2.261372	0.9103
	4	0.5683	0.4814	2.300394	0.9166
	5	0.8014	0.7339	2.002322	0.9064
	6	0.8149	0.7734	2.151831	0.9041
Full scale				2.191684	0.9158

The respondents' place attachment scores are presented in Figure 8. The sample generally reported very high place attachment scores, with the most frequent score also being the highest possible. The Spearman's rank correlation between residents' place attachment score and their attitude to Västvind indicates a statistically significant negative relationship ($r_s = -.3150$, $p = .0001$). The high place attachment is evident in almost all the subjected free-text-answers where respondents could describe the place of Öckerö municipality.

“Beautiful and lively!”

“Amazing environment, you get inner peace out here”.

“A connection that goes back many generations [...]”

“A paradise.”

“Freedom, nature, beautiful”

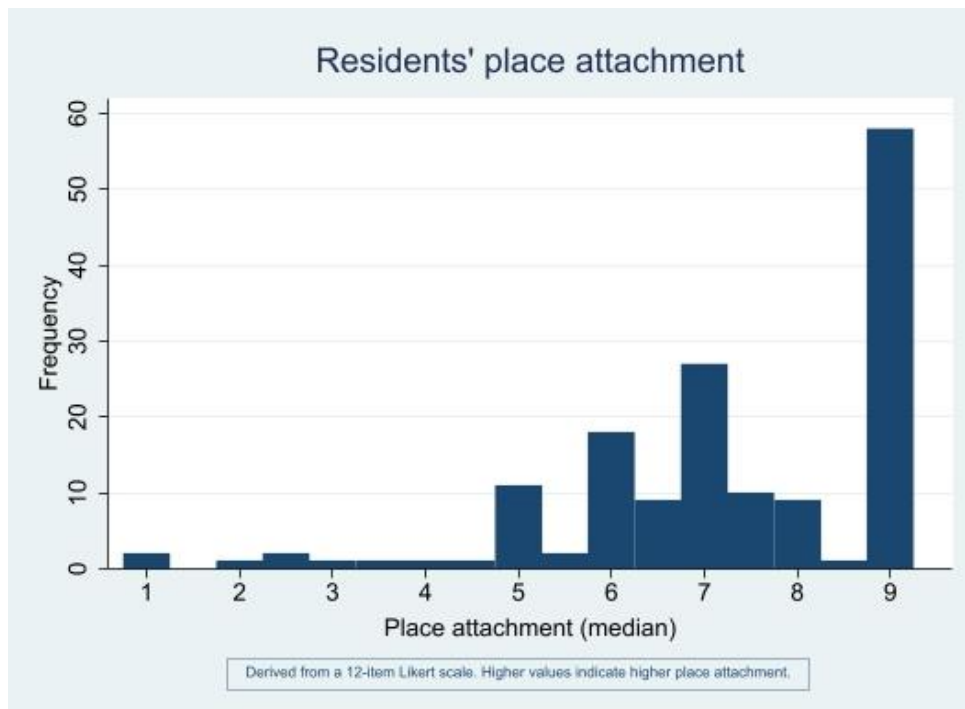


Figure 8 Histogram of residents' place attachment scores (1-9) derived from a 12-item Likert-scale.

4.3 Regression analysis

The ordinal logistic regression model included eleven independent variables and six covariate variables to study the effect on the response variable *Residents' attitude to Västvind*. The independent variables included the residents' place attachment index median, their general opinion of offshore wind energy, and all anticipated impact aspect variables except for *Employment*. The covariates included *Gender*, *Age*, *Education level*, *Type of residence*, *Length of residence*, and *Distance to Västvind*. With missing values observations removed, a total of 151 observations were included in the regression.

The 9-point scale variables were collapsed into 3-level category scales for easier interpretation of the model results. The response variable, *Residents' attitude to Västvind*, and independent variable *Residents' general attitude to offshore wind energy* were both recoded so that values 1-4 equalled *Negative*, value 5 *Neutral* and values 6-9 *Positive*. Similarly, the included independent aspect variables were transformed into

3-level scales where values 1-4 corresponded to *Negative impact*, value 5 to *No impact*, and values 6-9 to *Positive impact*.

The model's goodness-of-fit was tested using an ordinal version of the multinomial Hosmer-Lemeshow test, the Pulkstenis-Robinson test (Pulkstenis & Robinson, 2004) and the Lipsitz test (Lipsitz et al., 1996), as recommended by i.a. Fagerland and Hosmer (2016). The null hypotheses were accepted for all three tests, concluding that the model fits the data well in relation to the recommended threshold of $p > .05$.

Table 8 Goodness-of fit of Ordinal Logistic Regression model. Results from the Ordinal Hosmer-Lemeshow, Pulkstenis-Robinson and Lipsitz tests.

Model Goodness-of-fit			
	Ordinal HL	PR (dev.)	Lipsitz
Statistic	6.27	70.79	2.79
df	17	344	9
P-value	.99	1.00	.97

The ordinal logistic regression model determined that three of the studied independent variables have a statistically significant relationship with residents' opinion of Västvind, when all other variables are held constant. These are *Residents' general opinion of offshore wind energy*, *Anticipated impact on house prices*, and *Anticipated impact on local energy supply*. All three of the significant independent variables have considerably large standard deviations, but the confidence intervals do not include 0. Neither of the covariates show any statistically significant relationship with attitude of Västvind.

Table 9 Result statistics, Ordinal Logistic Regression.

Ordinal logistic regression

	Odds ratio	Std. err.	z	P>z	[95% conf. interval]		% odds change
Log likelihood = -32.146							
Number of obs = 151							
LR chi2(17) = 177.51							
Prob > chi2 = 0.000							
Pseudo R2 = 0.734							
Place attachment	0.715	0.162	-1.48	0.139	0.458	1.115	-28.5%
<u>Offshore wind energy***</u>	<u>10.523</u>	<u>7.047</u>	<u>3.51</u>	<u>0.000</u>	<u>2.832</u>	<u>39.103</u>	<u>952.3%</u>
Ocean view	0.228	0.186	-1.81	0.071	0.046	1.133	-77.2%
Climate	1.240	1.007	0.26	0.791	0.252	6.094	24.0%
Pride	3.577	2.782	1.64	0.101	0.779	16.425	257.7%
Tourism	3.681	4.018	1.19	0.232	0.433	31.266	268.1%
Regional Energy supply	0.978	0.946	-0.02	0.981	0.147	6.514	-2.2%
<u>House*</u>	<u>9.463</u>	<u>10.180</u>	<u>2.09</u>	<u>0.037</u>	<u>1.149</u>	<u>77.932</u>	<u>846.3%</u>
Fisheries	1.556	1.639	0.42	0.674	0.198	12.253	55.8%
<u>Local Energy supply**</u>	<u>10.694</u>	<u>9.589</u>	<u>2.64</u>	<u>0.008</u>	<u>1.845</u>	<u>62.000</u>	<u>969.4%</u>
Ecosystem	0.900	0.646	-0.15	0.883	0.220	3.677	-10.0%
Gender							
<i>Man</i>	0.549	0.466	-0.71	0.480	0.104	2.892	-45.1%
Age	1.023	0.032	0.72	0.469	0.962	1.088	2.3%
Education level	1.038	0.385	0.10	0.921	0.501	2.150	3.8%
Residence type							
<i>Parts of the year</i>	1.856	3.100	0.37	0.711	0.070	49.007	85.6%
Distance from Västvind	1.352	0.460	0.89	0.375	0.694	2.632	35.2%
Length of residence	1.119	0.362	0.35	0.727	0.594	2.109	11.9%

* = significance level p< .05
 ** = significance level p< .01
 *** = significance level p< .001

4.3.1 Anticipated impacts

For a one-unit increase of anticipated impact on house prices, i.e., moving from *Negative* to *No impact*, the odds of a resident being neutral or positive, rather than negative, to Västvind is 9.46 times greater (p= .037) (95% conf. interval 1.15 – 77.93). For a one unit increase in the anticipated impact on the local energy supply, the odds of not being negatively disposed to Västvind becomes 10.69 times greater (p= .008) (95% conf. interval 1.85 – 62.00). The positive relationship between anticipated

impact on house prices has previously been identified in two cases of social acceptance of offshore wind in England and Wales (Gibbons, 2015), and in the USA (Teisl et al., 2015). Likewise, the relationship between anticipated impact on the energy supply from a local offshore wind farm has previously been shown in a Danish case (Ladenburg, 2006).

The anticipated impacts on the ocean view, the municipality's climate impact, pride of the municipality, tourism, regional energy supply, fisheries, or local ecosystems are not statistically significant predictors of Västvind attitudes. However, *Ocean view* and *Pride* are close enough to the threshold of $p < .05$ to be noted. The anticipated impact on the pride of Öckerö municipality appears to have a positive relationship with attitude of Västvind ($p = .10$), and impact on the ocean view a negative relationship ($p = .07$). The null hypothesis $H1_0$ is rejected.

4.3.2 Offshore wind energy

Residents' general view of offshore wind energy has a strong positive relationship with their opinion of the Västvind project. For a one unit increase in residents' general view of offshore wind energy, the odds of the resident being neutral or positive rather than negative to Västvind is 10.5 times higher ($p = .00$, 95% conf. interval 2.83 – 39.10). The null hypothesis $H2_0$ is rejected.

This concludes that residents' attitude to offshore wind is closely related to their attitude to Västvind. If not the attitude to offshore wind energy was formed after the attitude of Västvind, this indicates that it is not the location or the specific project that is the issue for opponents, but the fact that it is an offshore wind establishment at all. It also deters the existence of any widespread (individual) Nimby-like tendencies among respondents.

4.3.3 Place attachment

The model indicates a negative, but not statistically significant ($p = .14$), relationship between residents' place attachment and opinion of Västvind. The null hypothesis $H3_0$ is thus accepted. While place attachment has been identified as an important factor in the forming of offshore attitudes for several previous studies (Brownlee et al., 2015; Devine-Wright & Wiersma, 2020; Fleming et al., 2022; Gonyo et al., 2021; Kermagoret et al., 2016; van Veelen & Haggett, 2016), it seems that for this case, the level of place attachment is high for almost all respondents irrespective of their attitude to Västvind. The level of place attachment might still be an indicator of how much someone cares about changes to the area, as theorised by i.a. Devine-Wright (2009), but high place attachment might not always be an indicator of what opinion someone has about those changes.

5 Discussion

In the following chapter, the methodology and results of the thesis is discussed, and recommendations for future research are presented.

5.1 Methodological discussion

The main limitations of the methodological design and their impact on what conclusions that can be drawn will be discussed in the following section. The discussion covers excluded variables, the place attachment-measurement, causality, and the generalizability of the results.

Excluded variables

One of the aspects included in the survey failed the brant-test for the assumption of proportional odds and was thus excluded from the regression analysis – *Employment*. The variable had high and significant correlation statistics with residents' attitude to Västvind. Most respondents anticipated positive effects on *Employment*.

With a different regression model, all aspects could probably have been included. The model could either have been more advanced and adapted to the data, the data could have been processed to fit better in the model, or the data could have been treated as continuous variables.

By treating the independent and the response variables as continuous instead of ordinal, more alternatives of regression models could have been applied. These would entail not having to fulfil the proportional odds assumption. However, that would cause other implications such as assuming that the alternatives of the attitude and place attachment scales were equidistant.⁴

Measuring place attachment

For the measuring of place attachment, statements from a two-dimensional theoretic model were applied and adapted. However, for the statistical analysis, the

⁴ See for example Robitzsch, 2020 and Verhulst & Neale, 2021 for further discussion on the positive and negative aspects of treating ordinal variables as continuous.

measurement was treated as one variable, with one dimension. A more advanced statistical model which takes into consideration the two dimensions of the concept is likely to have given valuable insights into the roles of the two underlying concepts' effect on residents' project-specific opinions, instead of the overarching concept.

Causality

The thesis does not aim to draw conclusions about a causal relationship between variables, as more research would be needed to understand potential underlying causal mechanisms. The chain of events between each of the independent variable groups and Västvind attitudes is likely to go in the direction that have already been assumed in the research design with the identification of independent and response variables. It is likely that residents' offshore wind energy attitude, estimations of impacts from Västvind, and their place attachment to Öckerö municipality developed before the respondents came to a conclusion about Västvind. However, the potential causal mechanisms underlying each relationship could not be understood properly without more information about respondents' motivations behind Västvind attitudes, and their priority of impacts from Västvind.

External validity

The practical context and the scope of this study has entailed certain limitations to the possibility to draw conclusions about the general population of Öckerö municipality. The non-random sampling method combined with the relatively small sample size makes it inappropriate to apply the conclusions of the thesis to the larger population.

For example, the self-selection design inherently causes difficulties for measuring the non-responses of the sample. There is no way of knowing the number of people that have been informed about the survey and chosen not to participate. Likewise, it is not possible to know the amount of people that would be relevant for the survey but that did not get information about its existence. The presumably large number of non-responses and the difficulties in measuring the amount, or characteristics, of the non-responses causes a potential non-response bias and sequent implications for the generalizability of the results.

Alternative, and preferable, sample selection methods to the one applied would either necessitate contact information to a large number of residents, or resources for mailing physical letters with information about the survey to residents. Equally important, alternative sampling methods would require more time than what was available for the scope of this thesis.

5.2 Attitudes to Västvind

The following subchapter discusses the results of the thesis, starting with the attitudes of Västvind and offshore wind energy, and motivations behind the attitudes. Thereafter, a discussion about the relationship between the results and the municipal official standpoint is presented, as well as a discussion on visual impacts and preferences for different types of energy production. Lastly, place attachment is discussed.

Attitudes and motivations

The polarized attitudes towards Västvind and offshore wind energy among respondents are notable. Of nine alternatives on the scale, a majority of respondents chose one of the two most extreme values *Very negative* and *Very positive*. This indicates that the respondents generally have strong opinions about these subjects and could give an indication of the local discussions on the topic. However, as the sample is not representative, it could also be an effect of self-selection bias, which increases the likelihood of an overrepresentation of people that have a strong interest in the surveyed topic.

The opponents generally anticipated negative impacts from Västvind (median values), while the data on Västvind supporters presented median values close to the *No impact* alternative. Only a small group of supporters had median values that indicated consistent anticipation of positive impacts. This shows that for most supporters, there is a relatively even balance between anticipation of negative and positive impacts, or that they did not anticipate any impact on many of the aspects.

The motivations behind respondents' attitudes were described in several of the answers. The free-text comments cannot be used to draw conclusions about the entire sample, but they can give some insight into possible underlying mechanisms of the forming of attitudes. Several Västvind supporters mentions energy supply as the motivation behind their attitudes, a reasoning that goes in line with Ladenburg's research on the Danish coast (2006). Respondents' anticipated impact on the local energy supply, or self-sufficiency, was also shown to be a significant predictor of attitudes to Västvind. The most common reasoning behind opposing attitudes that was brought up in the comments were the negative impact on ecosystems and the fisheries, as well as concerns about ownership and loss of local influence. The impact on local environment has also been shown to be important for the opposition of local offshore wind farms in Ladenburg's research (2006, 2008), as well as in other cases (Firestone & Kempton, 2007). Impact on local fisheries has mostly been stressed in stakeholder research (Chen et al., 2015; Gray et al., 2005; Todt et al., 2011) previously, but also in studies of residents' opinions (Firestone & Kempton, 2007). The potential impact on local fisheries can be expected to directly affect those employed in the industry, but perhaps not enough people to make a big difference in larger opinion polls. Instead, the fishing industry would have to rely on others to care

and prioritize the potential impacts, such as residents and political representatives. Once again, the importance of including stakeholders in the planning process is emphasized.

Lastly, many comments mentioned the impact on their decision from an anticipated loss of control or influence on local resources. This was expressed in two ways. First, as concerns about the future ownership of the farm. This concern has previously been noted in Linnerud et al's (2022) Norwegian case study. Secondly, as concerns about how the location of the farm is not in the interest of the local community, but a result of other actors and interests intervening, such as the government, close-by city Gothenburg, and industry actors. These aspects highlight the multi-dimensional character of offshore wind's (potential) advantages and disadvantages. A resident can perceive the changes to the local area as negative, while also perceiving regional or national impacts as positive. Depending on their priorities between the impacts, they can come to different conclusions about the local project.

As this thesis studies the relationships between anticipated impacts and attitude to Västvind, it should be noted that the regression analysis cannot say anything about what motivates supporters and opponents to form their attitudes, and insignificant predictors of Västvind attitudes could still play an important role in forming of attitudes of groups within the sample. For example, for many of the previously studied cases, visual impact is an important concern among residents and stakeholders (Ladenburg, 2006, 2008, 2009; Soerensen et al., 2001), and an important pillar of the opposition of local offshore wind farms (Waldo, 2012). While the respondents of this survey show a high tendency to anticipate a negative or neutral effect on the ocean view, and the regression analysis indicates that it is not a significant predictor of respondents' attitude to Västvind, the role of anticipated impact on the ocean view could still be an important motivator for respondents that oppose the project, but not for supporters, or the other way around.

The municipal standpoint

A large percentage of respondents were positive, and even very positive, to the project. While the results cannot be generalized to the larger population (See [5.2 Methodological discussion](#)), it still poses an interesting question about how the municipal standpoint relate to that of the residents, or in this case, the survey respondents. Several previous studies have concluded that the opposing minority is often more engaged and visible than the more silent supportive majority, and thereby makes it easy to underestimate public support (See Fleming et al., 2022; Johansen, 2019; Sokoloski et al., 2018).

The municipal statement mentioned several anticipated negative impacts from Västvind but stressed the negative effect on the ocean view most strongly. This goes in line with the ocean view also being the only aspect that most respondents anticipated to be negatively impacted. The other aspects that were stressed in the statement,

negative impacts on local ecosystems and fisheries, were anticipated by most respondents to not be impacted at all, although more than a third anticipated negative impacts for on both aspects.

In summary, the municipal standpoint is negative to Västvind, while the studied survey sample is not. However, the primary negative impacts that were stressed by the municipality were also present in respondents' self-described motivations of their opposition.

Energy production type preferences

Respondents were polarized in their attitudes and felt strongly about both Västvind and offshore wind energy in general. Multiple respondents compared offshore wind energy with other energy production types, primarily nuclear energy. This tendency to consider wind energy and nuclear energy as opposing alternatives has previously been noted in Sweden (Waldo, 2012) and France (Desvallées & Arnauld de Sartre, 2023), two countries with a historically large nuclear energy sector. As the general view of offshore wind energy was an important predictor of attitudes to Västvind in the survey sample, this phenomenon becomes extra interesting. Why are these two energy production types specifically not considered as combinable for many of the respondents? Would opponents to offshore wind be less negative, and would supporters be less positive, to offshore wind if nuclear energy was not considered the alternative option? To better understand this polarity, further research is needed.

Place attachment and offshore wind attitudes

Almost all respondents had a high level of place attachment, and place attachment was shown to not be a significant predictor of attitudes to Västvind. The theory of place attachment offers three possible explanations for this. It could be that the respondents perceive the suggested changes differently and therefore comes to different conclusion about whether it enhances or reduces the value of the place.

It could also be that the type of place attachment differs between respondents, and they therefore have different priorities when forming their opinion about the proposed farm. For example, some of the respondents that exhibited high place attachment might have answered high on the scale because they are attached to the community of the place, while others are attached to the place largely due to the nature and visual surroundings. The former might prioritize economic aspects and community benefits, while the latter can be expected to prioritize aspects relating to ecosystems and the ocean view. One last explanation could be that the relative difference between attachment to different levels of places can affect a person's priorities. For example, a person that exhibits high place attachment to their local area, but higher place attachment on a global level could in this case prioritize the

municipality's potential climate impact over the potential effects on visual aspects, even if they considered the ocean view to be negatively impacted by Västvind.

However, as most respondents were consistent with their attitudes to offshore wind energy and to Västvind, it might just be that place attachment is not an important factor in this case. To entirely rule out the role of place attachment in attitudes to Västvind, more information about respondents' perception of the proposed changes, the type of their attachment(s), and their other attachments is necessary.

5.3 Further research

As the research field of social acceptance of Swedish offshore wind farms is yet relatively unexplored, there are many research focuses that would be relevant for future studies. Some of these are attitude development over time, impact of perception of climate change and/or the climate transition, attitude polarization of public discussions, and the political gains and costs of supporting or opposing local wind farms. In the following section, a selected number of recommended topics for future research are presented. These are: (1) qualitative study of attitude motivations, (2) resident/stakeholder perspectives on anticipated loss of local influence and control over local resources, (3) the nuclear versus wind energy contestation, and (4) qualitative study of the role of place attachment.

Qualitative study of attitude motivations

This thesis set out to draw conclusions with the help of statistical analysis. The quantitative method and the design of the survey questions allow conclusion to be drawn about the respondents of the survey, and of potential relationships between the independent variables and attitudes to Västvind. It does not, however, draw conclusions about the respondents' motivations or reasonings behind attitudes or anticipated impacts.

Therefore, it would be interesting to look further into this case with qualitative interviews, where respondents can motivate what aspects that are the most important for their decision making, and why. This type of analysis could help understand respondents such as those that anticipated negative impacts on the ocean view but supported Västvind, and those who anticipated positive effects on the energy supply but opposed the project.

Also, the prioritization of impacts could also relate to the prioritization of the political decision on a local offshore wind project, in relation to other political areas. How important is the issue for voters that support versus those that oppose a project for their decision in the municipal elections? This type of question could give insight

into whether the phenomenon of a silent supporting majority, and a vocal opposing minority (Fleming et al., 2022) is applicable in this context.

Anticipated loss of local influence and control over local resources

As ownership and anticipated loss of local control due to external actors was brought up by several respondents, the importance of this concern in local decision-making about offshore wind farms is stressed. In further research, the role of this perspective in Swedish offshore cases should be studied and used to formulate recommendations for improving processes and communication between industry actors, public authorities, and stakeholders.

Nuclear versus wind energy

Several respondents put wind energy against nuclear energy. This was mentioned by both those who preferred nuclear energy over wind energy, and the other way around. While there are different advantages and disadvantages for the two production types, there is no natural oppositional relationship between them in the energy system. They can technically both be a part of the energy system, and currently is so. To understand this phenomenon, further research could focus on the reasonings behind this perceived polarity, as well as investigate to which extent this perception has been supported in medial and political discussions. For research on social acceptance of offshore wind energy, it would be interesting to study preferences in scenarios where both production alternatives are considered for local establishment.

Place attachment

To understand the role of place attachment and its potential impact on local offshore wind attitudes in the Swedish context, a deeper understanding of residents' place attachment is needed. What aspects of the place is it that they are attached, or not attached, to? Do they have other place attachments that could be contradictory with that of the local when interests clash? And perhaps most important, how do residents perceive the proposed changes? What could be the reasons for the different perceptions?

Could the different perceptions be related to differences in seaside perceptions, as suggested by Gee (2010)? And if so, how is other types of infrastructure and presences perceived, such as shipping routes, industrial fishing boats, and aquaculture?

6 Conclusions

In conclusion, around two thirds of respondents were positive to Västvind and around one fourth were negative. The sample overall exhibited polarized attitudes. Most respondents anticipated that Västvind would have a negative impact on the ocean view, a positive impact on the municipality's climate impact, employment, and on regional and local energy supply. Most respondents did not anticipate any impact on tourism, house prices, local fisheries, or ecosystems. For most of the aspects, the respondents were far from united in their impact estimations. Many respondents also noted the importance of ownership and right of local self-determination. Respondents that were negative to Västvind generally anticipated negative impacts on the listed aspects, while positive respondents had more varied estimations for each aspect, most often anticipating no effect or a positive impact.

The regression analysis concluded that attitude to offshore wind energy, and anticipated impact on house prices and local energy supply were significant predictors of Västvind attitudes. Attitudes towards offshore wind and to Västvind were similar, and few respondents that opposed Västvind were generally positive to offshore wind.

Place attachment was not a significant predictor of respondents' attitude to Västvind. Most respondents scored very high on the place attachment scale, both when they were positive and negatively disposed to Västvind. The strength of place attachment was not a significant predictor for this case; however, place attachment theory offers alternative explanations that includes the interaction of other variables that could potentially interact with the relationship. These include how the suggested changes (Västvind) are perceived, the type of attachment experienced by respondents, and what other (potentially competing) place attachments respondents have. Further research is needed to conclude the explanatory value of these theories.

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Appendix A: Adaptation of place attachment items

Table 10 List of original and adapted place attachment statements included in survey.

Original statement (Williams & Vaske, 2003)	Adapted version (Swe)	English translation
Dimension 1: Place dependence		
PlaDep1: X” is the best place for what I like to do	Att bo på öarna är viktigt för att kunna leva på det sätt som jag vill.	Living on the islands is important to live the way I want.
PlaDep2: No other place can compare to “X”.	Ingen annan plats kan jämföra sig med denna.	No other place can compare to this.
PlaDep3: I get more satisfaction out of visiting “X” than any other.	Jag är mer nöjd när jag spenderar tid här än på andra platser.	I am more pleased when I spend time in this area than in others.
PlaDep4: Doing what I do at “X” is more important to me than doing it in any other place.	Om jag flyttade någon annanstans hade jag velat att området liknade det jag bor i nu.	If I moved somewhere else, I would want the area to be similar to where I live now.
PlaDep5: I wouldn't substitute any other area for doing the types of things I do at “X”.	Jag kan inte tänka mig att bo någon annanstans.	I can't imagine living somewhere else.
PlaDep6: The things I do at “X”, I would enjoy doing just as much at a similar site.	Jag hade lika gärna velat bo någon annanstans.	I would just as well like to live somewhere else.
Dimension 2: Place identity		
PlaIde1: I feel “X” is a part of me.	Jag känner att den här platsen är en del av mig.	I feel this place is a part of me.
PlaIde2: “X” is very special to me.	Den här platsen är väldigt speciell för mig.	This place is very special to me.
PlaIde3: I identify strongly with “X”.	Jag identifierar mig mycket med det här området.	I identify strongly with this area.
PlaIde4: I am very attached to “X”.	Jag har stark anknytning till den här platsen.	I have strong attachment to this place.
PlaIde5: Visiting “X” says a lot about who I am.	Att bo på öarna säger mycket om vem jag är.	Living on the islands says a lot about who I am.
PlaIde6: “X” means a lot to me.	Det här området betyder inoentino för mig	This area means a lot to me.

Appendix B: Survey

Survey (translated from Swedish).

Dear respondent,

This survey investigates how residents in Öckerö municipality view the planned offshore project Västvind wind farm, and whether social acceptance for offshore wind energy is related to residents place attachment. The collected information will be used in a Master's thesis in Applied Climate Change Strategies at Lund University, which is written in collaboration with Göteborg Energi. The thesis is based on opinions from residents in the municipality and aims to lift residents' perspectives. The survey is directed at residents in Öckerö municipality above the age of 18.

The ambition is that the results of the thesis will be used to form just processes for site selection and establishments of wind energy. The survey takes approximately 5-10 minutes to respond.

Personal information


The information that you provide about yourself (ex. gender, age, income) and your other survey answers are treated by Lund University. No single individuals will be described in the result and no one unauthorized will have access to your answers. Your answers are analysed and stored de-identified.

It is entirely voluntary to participate in the survey and you can abort your participation at any time by exiting the survey. Your answers will not be saved.

You do not need to be familiar with the issue to participate. Your answers are valuable!

Thank you in advance!

 GDPR
Om denna fråga är exakt
‣ No, I do not want to participate
_____ UTFÖR DÅ FÖLJANDE ÅTGÄRD _____
→ Hoppa till frågan
Thank you for your participation!

Q1


1. Do you agree to participate according to the above stated conditions?
 Yes, I agree to participate
 No, I do not want to participate

----- -- SIDBRYTNING -- -----

Q2
Hi and welcome to this survey!

The survey consists of three parts: 1) demography and introductory questions, 2) opinions on offshore wind energy and the wind farm Västvind, and 3) place attachment.

Click on *Next page* to begin part one.

----- -- SIDBRYTNING -- -----

Q3
Part 1: Demography and introductory questions

Below a few questions about demography is presented. The answers are among other things used to compare the extent to which the respondents can represent the entire population in Öckerö municipality.

Boende i Öckerö kommun
Om denna fråga är exakt
• No

UTFÖR DÅ FÖLJANDE ÅTGÄRD

Visa meddelande:
Denna enkät riktar sig till boende i Öckerö kommun.

Q4

2. Do you live in Öckerö municipality?

Q5

3. For how long have you lived in Öckerö municipality?

Q8

4. How close to the suggested area for the wind farm do you live?

Identify the zone where you live on the map below and choose a response at the end of the questions.
Answer to the best of your abilities.

The proposed wind farm area is situated West of the zones, outside of the map.



Zone A (\leq ca 16 km from the suggested area)

- Zone B (ca 16-17 km from the suggested area)
- Zone C (ca 17-18 km from the suggested area)
- Zone D (ca 18-19 km from the suggested area)
- Zone E (ca 19-20 km from the suggested area)
- Zone F (ca 20-21 km from the suggested area)
- Zone G (ca 21-22 km from the suggested area)
- Zone H (\geq ca 22 km from the suggested area)

Q7

5. Are you registered on an adress in Öckerö municipality?

- Yes
- No

Åldersbegränsning

Om denna fråga är exakt
Senare än 2005

UTFÖR DÅ FÖLJANDE ÅTGÄRD

Visa popup: Denna enkät riktar sig till boende i Öckerö kommun som har fyllt 18 år.

Q8

6. In which year were you born?

Q9

7. What is your gender?

Q10

8. What is your highest level of finished education?

Q11

9. What is your yearly income before taxes? Choose an interval below.
(*tkr = thousand SEK*)

Q12

10. What is your primary occupation?

Q13

11. Is the ocean important for you to be able to practice your occupation?

(For example if you work in the fishing industry, in the harbour or in coastal tourism.)

Yes

No

Space for comment about your occupation

-- SIDBRYTNING --

Q14

Part 2: Offshore wind energy

The planned offshore wind energy project Västvind conducted a delimitation consultation in 2021-2022 where the municipality and the public, among other actors, could share their views and ask questions. Since then, the project owner Eolus is working on compiling the opinions and adapting their application. In the next phase, the project will apply for a permit. The project needs the municipality's formal approval in order to be realized.

Q15



12. What is your opinion of offshore wind energy in a future energy system?

(On a scale from 1-9 where 1= Very negative and 9= Very positive)

1 Very negative 2 3 4 5 Neither positive nor negative 6 7 8 9 Very positive

Offshore wind energy in a future energy system | | | | | | | | | |

Space for comment

Q16

13. Were you previously familiar with the offshore wind energy project Västvind that is planned in Öckerö municipality?

Yes

No

Q17

14. What is your opinion of the wind energy farm Västvind?

(On a scale from 1-9 where 1= Very negative and 9= Very positive)

	1 Very negative	2	3	4	5 Neither positive nor negative	6	7	8	9 Very positive
Your opinion of wind energy farm Västvind	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Space for comment

Q18

15. Which effect do you believe that the wind farm Västvind will have on the following aspects?

(On a scale from 1-9 where 1= Very negative and 9= Very positive)

	1 Very negative	2	3	4	5 Neither negative nor positive	6	7	8	9 Very positive
The experience of the ocean view	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The municipality's climate impact	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Employment in the municipality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pride over the municipality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tourism in the municipality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Regional energy supply	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Housing prices in the municipality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The fishing industry in the municipality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Local energy supply in the municipality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Local ecosystems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q19

16. Are there any other aspects that could be affected? Please, mention these below and whether the impact would be positive or negative.

Q20

Part 3: Place attachment

This last part concerns your attachment to the place where you live (Öckerö municipality). Answer to the best of your abilities and do not spend too much time on a single question or statement. There are no right or wrong answers.

Q21



17. Below are twelve statements about you relationship with the place where you live (Öckerö municipality). To what extent do you agree with the statements?

(On a scale from 1-9 where 1= Strongly disagree and 9= Strongly agree)

	1 Strongly disagree	2	3	4	5 No opinion	6	7	8	9 Strongly agree
Att bo på öarna är viktigt för att kunna leva på det sätt som jag vill	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Det här området betyder ingenting för mig	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ingen annan plats kan jämföra sig med denna	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jag identifierar mig mycket med det här området	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jag är mer nöjd när jag spenderar tid här än på andra platser	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Att bo på öarna säger mycket om vem jag är	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jag kan inte tänka mig att bo någon annanstans	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jag har stark anknytning till den här platsen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Om jag flyttade någon annanstans hade jag velat att området liknade det jag bor i nu	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jag känner att den här platsen är en del av mig	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jag hade lika gärna velat bo någon annanstans	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Den här platsen är väldigt speciell för mig	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q22

18. How would you describe the place where you live (Öckerö municipality) in a few words?

-- SIDBRYTNING --

Q23

19. Do you have any comments about the survey? Please comment below.

Please note that it is not possible to answer questions that are phrased in the comment section below.
Contact information for questions are available at the bottom of this page.

Q24

20. Would you be interested in participating in a follow-up interview for around 15-20 minutes?

If so, leave your email address or telephone number below and I will send you additional information!

You are guaranteed full anonymity and the interview can be carried out though phone, in person or digitally.
Your contact information will only be available to me.

GDPR

Om Do you agree to participate according to the above stated conditions? är exakt

› No, I do not want to participate

UTFÖR DÅ FÖLJANDE ÅTGÄRD

➔ Hoppa till denna fråga

Q25

Thank you for your participation!

It is of great value.

If you have any further questions, you can contact me, Milla Marzelius, on the following email adress:
mi7520ma-s@student.lu.se.