

Attitudes towards onshore wind power in Norway: The role of ownership



Ragnar Már Grinde

Master Thesis in Climate Change Management

Department of Environmental Sciences, Faculty of Engineering and Science

WESTERN NORWAY UNIVERSITY OF APPLIED SCIENCES

Sogndal

June 2019

I confirm that the work is self-prepared and that references/source references to all sources used in the work are provided, cf. Regulation relating to academic studies and examinations at the Western Norway University of Applied Sciences (HVL), § 10.



Western Norway
University of
Applied Sciences

Attitudes towards onshore wind power: The role of ownership

Master thesis in Climate Change Management

Author: Ragnar Már Grinde	Author sign. <i>Ragnar Már Grinde</i>
Thesis submitted: Spring 2019	Open thesis
Main Supervisor: Professor Kristin Linnerud Co-supervisors: Senior research fellow Morten Simonsen	
Keywords: ownership, ownership models, ownership change, national ownership, foreign ownership, international ownership, status quo bias, onshore, wind power, framing experiment, renewable energy, social acceptance, attitudes	Number of pages: 45 Sogndal, 03,06, 2019
This thesis is a part of the master's program in Climate Change Management (Planlegging for klimaendringer) at the Department of Environmental Sciences, Faculty of Engineering and Science at the Western Norway University of Applied Sciences. The author(s) is responsible for the methods used, the results that are presented and the conclusions in the thesis.	

Preface

This is a master thesis at the Western Norway University of Applied Sciences (Høgskulen på Vestlandet) department of Environmental Sciences, Faculty of Engineering and Science, in Sogndal. This thesis corresponds to 30 credits in the study programme of Climate Change Management.

I would like to thank my supervisors, Professor Kristin Linnerud and Senior research fellow Morten Simonsen, for their guidance. I would also like to thank research assistant George Philip Toney for his help in forming the early drafts of my questionnaire and sharing his blueprint for how to best present the survey to the students in a quick and effective manner, without giving away too many details. Even though I may have lacked some of the background in statistics necessary to analyse the data from this experiment, Kristin and Morten both helped me understand the complicated world of social research methods far beyond what I had already been taught, being patient to make sure I knew what I was doing. Morten was also an excellent tutor as I had to learn the statistical programme SPSS from scratch, in a matter of days, without previously having had a dedicated statistics course. Weekly meetings and quick responses to emails around the clock was also of great help whenever I was stuck or in need of some advice.

Abstract

Over the next two years, Norway stands to triple its production of onshore wind power electricity. This increase in production is not being spearheaded by Norwegian companies, but by foreign investors, constructing billions of kroners worth of onshore wind power installations across the country. While the government is focused on increasing Norway's share of renewable energy and fulfilling its climate change mitigation goals, local opposition to wind power is growing, despite an overall positive attitude towards the technology nationally. This represents a considerable challenge to a swift energy transition.

In this thesis, I analyse whether ownership models matter for people's attitude towards a hypothetical onshore wind power project set in their home municipality, and whether ownership change negatively affects their attitude, regardless of the previous ownership model. This preference for the current state of affairs is known as a "status quo bias". I used a two-stage framing experiment and a student sample.

I find that people have a much more positive attitude towards the hypothetical wind power project if it has a national ownership model, as opposed to a foreign ownership model. However, I do find that people are less negative towards foreign ownership if it is introduced as the status quo ownership model.

Although my overall statistics show that people react negatively to ownership change itself, supporting the existence of a status quo bias, I have other results that dispute this. I find that people only have a negative attitude to ownership change if the project's goes from having a national- to a foreign ownership model, and not the other way around. I interpret this seeming lack of a status quo bias as being due to the two ownership model options not being of a somewhat equal value. This is because national ownership represents the traditional way of operating in the Norwegian energy industry, while foreign ownership represents an unknown path, with unclear consequences. Thus, they are not similar enough to produce a status quo bias. I conclude this paper by discussing the meaning and robustness of my findings, as well what policy implications they might have.

Samandrag på norsk

Over de neste to årene er det anslått at Norge vil tredoble sin produksjon av elektrisitet fra landbasert vindkraft. Denne økningen er ikke ledet av norske bedrifter, men av utenlandske investorer, som konstruerer landbasert vindkraft for millioner av kroner over hele landet. Mens regjeringen satser på å øke Norges andel av fornybar energi og å oppfylle sine mål for reduksjon i klimagassutslipp, så øker lokal motstand mot landbasert vindkraft, trass i en positiv holdning mot vindkraft på nasjonal basis. Dette representerer en betydelig utfordring når det gjelder å få til en rask energiovergang.

I denne avhandlingen analyserer jeg hvorvidt eierskapsmodeller betyr noe for folks holdning mot et hypotetisk landbasert vindkraftprosjekt i deres hjemkommune, og om eierskapsendring har en negativ påvirkning på holdningen deres, uavhengig av forrige eierskapsform. Denne preferansen for det etablerte er kjent som et «status quo bias». Jeg brukte et to-stegs Innrammingeksperiment med studenter som utvalg.

Jeg fant at folk har en mye mer positiv holdning til det hypotetiske vindkraftverket om det har en nasjonal eierskapsmodell, i motsetning til en utenlandsk eierskapsmodell. Samtidig fant jeg at folk var mindre negative til utenlandsk eierskap om dette ble introdusert som status quo eierskapsmodellen.

Selv om statistikken min totalt sett viser at folk er negative til eierskapsendring i selg selv, som så tyder på at det er status quo bias til stede, så har jeg andre resultater som motsier dette. Jeg fant at folk bare har en negativ holdning til eierskapsendring om prosjektet går fra å ha en nasjonal- til en utenlandsk eierskapsmodell, og ikke motsatt. Jeg tolker denne tilsynelatende mangelen på status quo bias til å være forsakket av at de to alternative eierskapsmodellene ikke er av noenlunde lik verdi. Dette er fordi nasjonalt eierskap representerer den tradisjonelle måten å operere på i norsk kraftindustri, mens utenlandsk eierskap representerer et ukjent valg, med uklare konsekvenser. Dermed er de ikke like nok til å kunne produsere et status quo bias. Jeg avslutter denne avhandlingen med å diskutere betydningen av- og robustheten til mine funn, samt de politiske konsekvensene de kan ha.

Table of contents

Preface.....	I
Abstract	III
Samandrag på norsk.....	IV
Table of contents.....	VI
1 Introduction.....	8
2 Theory and hypothesis	12
2.1 Acceptance and ownership models	12
2.2 The status quo bias.....	14
3 Methods	15
3.1 Sample	15
3.2 Survey design.....	16
3.2.1 Stage One	17
3.2.2 Stage Two	17
3.3 Variables.....	18
3.3.1 Dependent variables	18
3.3.2 Independent variables.....	18
3.4 Statistical analysis.....	22
3.4.1 Descriptive data analysis	23
3.4.2 Statistical analysis.....	23
4 Results	24
4.1 Overview.....	24
4.2 Hypothesis 1: Ownership model preference.....	25
4.3 Hypothesis 2: Ownership model change.....	29
4.4 Other findings.....	34

5	Discussion	36
5.1	Hypothesis 1: Ownership model preference.....	36
5.2	Hypothesis 2: Ownership model change.....	37
5.3	Other findings.....	38
5.4	Robustness	40
6	Conclusion and policy implications	41
7	References.....	44

1 Introduction

According to the former head of the Norwegian Water Resources and Energy Directorate (NVE), Per Sanderud, Norway is experiencing its own Klondike rush in onshore wind power investments (Andersson et al., 2018). While Norwegian investors are hesitant, foreign investors are constructing billions of kroners worth of onshore wind power installations. Over the next two years, Norway stands to triple its production of onshore wind power electricity, from 5 TWh in 2018 to 15 TWh in 2021. NVE further predicts a total wind power capacity of 20 TWh by 2030 (Leifseth., 2018). On the 1. April 2019, NVE also put forward a list of 13 areas eligible for future wind power development (NVE, 2018a), causing much debate in both local and national media. As wind energy cannot be easily stored, a larger installed capacity of wind power will be necessary in order to phase out the reliance on importing coal-generated electricity at certain peak hours or when the hydropower reservoirs are low (Leifseth., 2018).

Even though Norway has a great potential for generating renewable electricity from wind power, local acceptance across the country is far from being overly positive. Much like with the era of massive hydropower expansion in the 1960s, 70s and 80s and the opposition that followed, resistance towards further large-scale renewable energy projects continue today. Wherever a major wind power installation is planned, heated debates and town hall meetings follow (Jensen, 2018). Researchers, politicians, activist and lobbyists argue whether the benefits to local communities outweigh the costs (Rypeng & Eilertsen, 2018a) or if wind power is even necessary to fulfil Norway's renewable energy targets (Haakenstad, 2019). And as was the case in the era of the great hydropower expansion, some people have begun protesting by chaining themselves to construction site machinery (Rypeng & Eilertsen, 2018b).

Opposition aside, in order to reach the United Nation's goals for climate mitigation ("UN Sustainable Development Goals," 2019c) and sustainability ("UN Sustainable Development Goals," 2019a; "UN Sustainable Development Goals," 2019b), the world needs to accelerate the transition to renewable and low-carbon energy. NVE data from 2017 show that Norway already produces more renewable electricity (146,1 TWh) than its total electricity consumption (134,1 TWh), and that Norway's renewable energy share is about 98% of its electricity production (NVE, 2018b). But Norway is endowed with rich natural energy resources and can, by increasing its production of renewable electricity, increase its renewable energy share even further. This would allow the country to export more renewable electricity to Europe and become a "green battery" for Europe.

A recent Statnett report claim that we need an additional 30-50 TWh of yearly electricity production to fully electrify the country and replace today's use of fossil energy (Holmefjord, 2019). A great majority of our current energy production comes from hydropower, consisting of over 1500 dams, where only 300 of them have a capacity over 100 MW (NVE, 2018c). With such a large install base of hydropower disrupting Norwegian nature, it is understandable that people are hesitant in welcoming even more large energy installations in the form of wind power. Nevertheless, Europe still needs more renewable energy, and Norway's windy coasts and mountains are particularly suitable for the job.

The United Nation's Intergovernmental Panel on Climate Change (IPCC) stated in a 2018 special report that limiting the temperature rise to 1,5°C would require the global net anthropogenic CO₂ emissions to decline by 45% from 2010 levels to 2030, and to reach net-zero by 2050. In such a scenario, renewable energy sources are projected to supply 70-85% of global electricity by 2050. (IPCC, 2018) According to the International Energy Agency (IEA), renewable energy accounted for 23% of the global power supply in 2017 (IEA, 2017). With roughly a decade left to try and limit global warming to 1,5°C, it is now deeply necessary to initiate a swift transition to renewable energy. With such rapid changes needed, it becomes necessary to cooperate with experienced partners, which inevitably leads to debates about changes in established ownership models for electricity producing installations. To manage this problem as it relates to the expansion of wind power in Norway, it is necessary to understand the factors that affect social acceptability of wind power installations.

Wüstenhagen et al. (2007) defines social acceptance as consisting of three components; socio-political, market and community. The socio-political component refers to the acceptance of renewable energy technology and policies, the market component refers to consumers' adoption of innovative products, and the community component refers to "the specific acceptance of siting decisions and renewable energy projects by local stakeholders, particularly residents and local authorities" (Wüstenhagen et al., 2007). This thesis focuses on the last of these components, specifically on community *attitudes* towards a hypothetically planned onshore wind power project in Norway. Upham et al. (2015) defines social acceptance as "a favourable or positive response (including attitude, intension, behaviour and – where appropriate – use) relating to proposed or in situ technology or social technical systems by members of a given social unit (country or region, community or town and household, organisation)". Understanding factors that negatively affect the attitudes towards onshore wind power projects in Norway may help in dealing with challenges related to a lack of community and social acceptance of these projects overall. As such, a general understanding of factors that affect the social acceptance of renewable energy forms

the basis of this thesis. With that basis I further seeks to understand how attitudes drive the social acceptance of wind power in Norway, and how that might relate to the many reports of local resistance against wind power, despite an overall positive public attitude nationally (Leiren & Linnerud, 2019), and if the strong growth of international owners in the Norwegian wind power sector is contributing greatly to local resistance. This negative local attitude towards wind power also contrasts with the attitudes towards the established hydropower industry, which consist of national Norwegian companies, with owners on both local, regional and national scales. Norway's goals of increased wind power installations, and its geopolitical factors, has brought with it a fervent opposition to new wind power projects from local communities who feel their voices aren't being heard.

Few studies have investigated the effect international ownership has on local attitudes towards wind power projects. However, by looking at similar established research, one can draw a general set of conclusions as to what matters most to people. To start, the often-cited Not In My Back Yard (NIMBY) effect (Rygg, 2012) is now deemed a too simplistic of an explanation. Yet, what often matters most is still what NIMBY suggests is most important, namely the ecological aspect. Tabi and Wüstenhagen (2017) found that people's attitudes towards a project are affected by how it will impact the local environment and ecology, as well as their recreational possibilities. Similarly, Ek and Persson (2014) found that the strongest opposition towards wind power wasn't in relevance to where people lived, but to how it affected their recreational areas. Thus, the landscape which people personally value the most for recreational purposes is the landscape they care the most about preserving against industrial projects.

Other important aspects are distributional- and procedural justice, dealing with the perceived fairness in relation to the amount of wind power that is built, its monetary benefits and the ability to participate in the planning process (Tabi & Wüstenhagen, 2017). Here, Liebe et al. (2017) found that even though people who have wind turbines in their vicinity already tend to be more accepting of new installations, there is a point where the installed capacity "burden" is seen as unfair, and virtually no amount of monetary incentives become acceptable. In addition, they saw a "region effect", where having far more wind power installations than other regions lead to a plummeting acceptance for new installations. This underscores the need for distributing wind power installations somewhat evenly. Furthermore, Liebe et al. (2017) also found that local acceptance is higher if the power generated is consumed within the region, and not just immediately exported.

Stigka et al. (2014) point out that it is important to educate the public about the technology to avoid misconceptions and mistrust, mitigate unfounded fears and ensure that a constructive passionate

debate can be had based on facts rather than ignorance. This of course goes both ways, as the developers also need a nuanced picture of both the landscape, which they seek to harvest energy from, as well as the people it affects. Sometimes the public can also provide valuable information, not accounted for in the initial project plans.

As for ownership models, the studies seem to indicate a general preference for local and regional owners over national and international ones, with private and foreign ownership being largely frowned upon (Ek & Persson, 2014). Adding to this, there is great importance in understanding the public's thoughts around the status quo. People appear to instinctively dislike change. This "status quo bias" (Linnerud et al., 2019) seem to suggest that people's issue with ownership change isn't that it goes from national to international or vice versa, but simply that it changes at all.

Relating the established research to the onshore wind power situation in Norway, one can deduce that the current negative local attitudes towards these projects comes from a perceived unfairness in distributional- and procedural justice, both nationally and geopolitically. It is possible that the already large hydropower installation capacity in Norway gives people the feeling of already having "sacrificed" enough nature to energy production. This could further lead to a mirroring of the region-effect (Liebe et al., 2017), but on a macro-scale, with people feeling Norway's wind resources are being exploited by the EU. In such a scenario, it is no wonder people are strongly opposing wind power construction projects and acting out of uncertainty, fear and a disdain for not being heard. There is clearly a problem in communicating both the necessity for these wind power projects to the public as well as ensuring a proper dialogue between local populations, the politicians and the developers. Further missing from all of this is a proper study into how international ownership models affect Norwegian's social acceptability of wind power projects and whether the status quo bias is present in such a scenario. In this thesis, I sought to answer those questions as well as to test some of the results and conclusions from previous research to see if they would be replicated.

The main research questions of this thesis were:

"Is the social acceptance of wind power projects influenced by ownership models?"

"Does a change in ownership reduce acceptance of wind power projects, regardless of the previous ownership model?"

2 Theory and hypothesis

The main research question of this thesis was “Is the social acceptance of wind power projects influenced by ownership models?”, with the aim of the thesis being to investigate whether students at the Western Norway University of Applied Sciences (Høgskulen på Vestlandet, HVL) attitudes towards onshore wind power projects in Norway are affected by a shift in ownership from dominant foreign owners- to dominant national owners or vice versa. In this section, I will present information from relevant studies that helped form my two main hypotheses. First, I will look into the effect *ownership models* has on attitudes towards wind power (section 2.1), and then I will look into how *change* in ownership models affects attitudes towards wind power (section 2.2).

2.1 Acceptance and ownership models

When it comes to ownership models’ affect on attitudes towards renewable energy, there is little research on the subject of international ownership. There is however, some research done into how attitudes towards renewable energy projects are affected by different factors, one of which is ownership models. Understanding this research could be beneficial for the current situation in Norway, where most new wind power installation are partly of fully owned by international companies. This of course is a strong contrast to the Norwegian hydropower industry, dominated by large national and regional companies and small-scale local operations. Below are three studies, who all investigated different factors influencing attitudes towards wind power and hydropower, with highly relevant results.

Ek and Persson (2014) set up a choice experiment to investigate people’s attitudes towards wind power in Sweden. Respondents were asked to choose between two hypothetical wind farms, with different ownership models, landscapes, degree of local participation in the planning process, and revenue models. Their statistical analysis indicated that Swedes were more willing to accept higher renewable energy electricity fees if the wind farms were owned by either the municipality or a cooperative, over a national state-owned company. Private ownership, on the other hand, had a strong negative effect on local attitudes toward the project. There was also an acceptance for higher fees if locals were involved in the planning process or if the project area wasn’t used for recreational purposes. However, they did not test whether such socio-demographic factors (native landscape, recreational areas, gender, environmental interests) affected people’s view on ownership models.

Liebe et al. (2017) did a similar experiment as Ek and Persson (2014), where they investigated attitudes towards wind power in Germany and Poland. They characterized their hypothetical wind farms based on

ownership models, degree of local participation in the planning process, regional distribution of the turbines, and the motivations for developing wind power in the area. Like Ek and Persson, they also find that respondents are more willing to accept new wind power projects if they are owned by local or regional companies, as opposed to national or foreign companies, and if locals can participate in the decision-making process. They further saw a higher degree of local acceptance if the generated electricity is consumed within the region and not exported. They also found that even though people who already were exposed to wind turbines in their vicinity already tend to be more accepting of new installations (“exposure-acceptance argument”), there came a point where the installed capacity became an unfair burden compared to the other regions, creating a “region effect”. Liebe et al. (2017) also did not test whether socio-demographic variables from their analysis (like gender, age, education and place of residence) influenced respondents’ preference for ownership models.

Tabi and Wüstenhagen (2017) did a choice experiment study about hydropower project acceptance in Switzerland, where respondents had to choose between different projects that varied with respect to ecological impact, public participation, employment, income from water tax and ownership models. The owners could either be a local- or regional utility, a private domestic company, or a German company. Survey respondents put local ownership as their overall second most important attribute, right behind ecological concerns. Here most people stated that they would strongly prefer local or regional owners over a private or foreign (German) company. The sentiment was that foreign investors were more likely to “take the money and run” than organizations embedded in the local or regional community. Tabi and Wüstenhagen (2017) also found evidence for socio-demographic variables influencing respondents’ attitudes towards ownership models. Older and more politically conservative respondents preferred local ownership, while those with high levels of education and income, and those who were members of an environmental organization, deemed local ownership as less important. They did not find any meaningful difference regarding gender.

Based on the research discussed above, the first hypothesis to be tested in this thesis is:

Ownership model preference

H₁: People have more positive attitudes towards the hypothetical wind power project if the owners are mainly national companies as opposed to foreign companies.

2.2 The status quo bias

Linnerud et al. (2019) did a study investigating whether a change in ownership affected the social acceptance of renewable energy projects, theorizing that social acceptance is not only about the willingness to accept a project, but also about an unwillingness to accept changes in the project's ownership model. They surveyed the social acceptance of hypothetical hydropower ownership models in Norway, focusing on local versus national ownership. They found that a change in ownership significantly reduced the acceptance of the hydropower project, regardless of whether the change was from a local to a national owner, or vice versa. They further interpreted this finding as an example of a status quo bias. This status quo bias represents a significant challenge to the acceptance of both new ownership models as well as the introduction of new energy technologies into a populous that might be content with their current energy mix. Linnerud et al. (2019) further connects "loss aversion" to the status quo bias, citing Tversky's prospect theory (Kahneman, 1979), explaining that "losses and disadvantages have a greater impact on attitudes than do gains and advantages" (Tversky & Kahneman, 1991), meaning people tend to focus on the possible negatives when presented with a sudden change in ownership models. Likewise, they underline that people seek to avoid uncertainties. They cite the economist Frank Knight, who distinguished between risk and uncertainties. Risk is measurable and has known probabilities and outcomes, whereas uncertainties are not measurable and are very much unpredictable (Ellsberg, 1961). Without the adequate background knowledge, a perceived sudden shift in the ownership models of renewable energy installations can quickly become a source of uncertainty. Other possible explanations for the status quo bias, presented by Linnerud et al. (2019), are "existence, longevity and inertia (regret avoidance) biases". The fact that something exists is often deemed as a good. Therefore, its continued existence (longevity) is considered even better. Then there is the fear of regret in making a wrong decision, leading people to stay with what they know and trust. All these factors underscore the importance of the local population having sufficient knowledge about renewable energy projects being implemented in their region and the importance of early participation in the planning process.

Based on the research discussed above, the second hypothesis to be tested in this thesis is:

Ownership model change

H₁: A change in the ownership model for the hypothetical wind power project (all else equal), does by itself influence people's attitudes towards the project (i.e., a status-quo bias).

3 Methods

To answer the research questions for this thesis, and investigate whether there is a causal connection between ownership models and attitudes towards wind power, I chose to do a questionnaire with a framing experimental study design, similar to the study done by Linnerud et al. (2019). With an experimental study it is possible to manipulate the study conditions to uncover casual mechanisms, as opposed to an observational study, where such casual mechanisms must be uncovered by statistically controlling for external factors. Where the results of an observational study are easier to generalise to a wider population, the controlled environment of experimental studies are better suited to finding casual connections. The questionnaire was also performed before the 1. April 2019 deadline for NVEs list of future wind power development areas (NVE, 2018a), so as to not have the responses be affected by the then upcoming debate in national media.

In this section, I will explain my method of sampling (section 3.1), survey design (section 3.2), survey variables (section 3.3) and statistical analysis (section 3.4) chosen for testing the two main hypotheses.

3.1 Sample

To test the hypotheses, I sampled undergraduate students at the Sogndal branch of Western Norway University of Applied Sciences and conducted an electronic survey. After contacting as many lecturers as possible, by email and in person, I was invited to conduct a questionnaire with a total of eighteen classes, many of whom had combined lectures with students from different study programmes. As the initial net cast was so wide, the yes-responses from lecturers was seemingly random enough to not warrant a further randomized selection of classes. There was also an issue of not knowing the exact number of students in each class, which could vary greatly depending on the study programme and even the day of the week. This meant that narrowing down the potential pool by randomizing the classes could have led to me not getting enough respondents, or not getting enough respondents from the different fields of study. Thus, surveying 100% of the available populous rather than maybe just 80% was deemed acceptable.

Students were asked (in class) to voluntarily complete a 5-minute questionnaire, on a website, interacting with the program SurveyXact. Students who did not bring a smartphone, pc or tablet did not participate in the questionnaire. In the end, 373 students completed the questionnaire.

It can be argued that this sample is only really representative for young and educated people in Norway, and thus strictly can't be generalized for the wider population, as the first hypothesis concerns ownership and since empirical studies into the social acceptance of renewable energy projects have shown that age and education will often influence people's attitudes towards project attributes (see section 2.1). However, a key aspect of this study was to explore whether a *change* in ownership affected attitudes towards the project. And attitudes towards *change* is very much a cognitive bias, often based on loss aversion and regrets-avoidance (see section 2.2). It is a bias springing from a need to simplify complicated decision making. This cognitive bias can thus be assumed to apply to all individuals, regardless of social-demographic variables such as age, gender and education, as they are all humans in a modern information society. With this in mind, it was interesting to investigate whether the attitudes of the student body would mirror the seemingly negative populous attitude towards wind power recently presented in the media, or if they would be more positive than what the stories in the media seemed to tell, as suggested by Leiren and Linnerud (2019). If nothing else, the results are relevant for researchers and policymakers as it contributes to understanding how young educated people respond to changes. The results also reflect the opinions of an important part of the populous and possibly that of a new generation, that will soon enter the workforce and be an increasingly important voting group in elections for decades to come.

3.2 Survey design

To test the hypotheses, I designed a two-stage framing experiment, modelled after that of Linnerud et al. (2019). In both stages, respondents were asked to state their attitude toward a hypothetical wind power project happening in their home municipality. The exact wording of the questions, following the text describing the situation, was: "On a scale from 0-10, what is your attitude towards this wind power project?" Response categories 0, 5 and 10 were labelled "Strongly negative", "Neutral" and "Strongly positive", respectively.

In the data output for the SurveyXact program, the 0-10 Likert scale results were coded in a 1-11 point scale. This scale was then recoded into a three-point Likert scale of "Negative", "Neutral" and "Positive". With 1-4 being recoded to "Negative", 5-7 as "Neutral" and 8-11 as "Positive".

3.2.1 Stage One

In stage one, a prospect for the hypothetical wind power project is first presented to the respondents, with the exact wording being: “Imagine that a group dominated* by [owner type] are going to build a wind power plant a few kilometres from the place you grew up.” Here the asterisk (*) explained that the dominant owners controlled over 50% of the shares in the project, while the other owners are in the minority. The presentation continues with outlining technical specifications of the project, its potential environmental impacts and its effects on society and the economy. The respondents were divided into two groups based in quarterly dates of birth. Respondents in the first group were told that the hypothetical wind power project would be built in their home municipality by a group consisting of dominant national owners and with foreign owners in the minority. Respondents in the second group were told that the wind power project would be built by a group consisting of dominant foreign owners and with national owners in the minority. All information, except the ownership models, were identical for the two groups.

3.2.2 Stage Two

In stage two, respondents were presented with a situation where the ownership model (status quo) had changed. For the first group, who were presented with national dominant owners as their “status quo” ownership model, the prompt in the second stage would be: “Imagine you are told that there has been a change in the ownership model of the planned wind power plant in your home municipality. The national owners have sold much of their shares and the foreign owners are now the dominant* owners in the project.” Here the asterisk (*) served to remind the respondent what is meant by the word “dominant” as it relates to the amount of controlling shares the different owners have. For the second group, the prompt would be the same, but with a change from foreign to national dominant owners. This was done in order to see if Linnerud et al. (2019)’s findings about a status quo bias influencing people’s attitudes, when presented with a switch between national and local ownership models, would be replicated with respect to national and foreign ownership models. Comparing the responses from stage one and stage two thus allows for testing hypothesis two (ownership model change). There would be evidence for a status quo bias if the respondents’ attitudes towards the wind power project became more negative when they were presented with a new owner, regardless of whether the ownership change was from national to foreign dominance or from foreign to national dominance.

3.3 Variables

In my thesis, the focus was on ownership models and ownership change, and so the dependent variables (section 3.3.1) reflected this. In addition, I also set out to ask questions that would control for a long list of different independent variables (section 3.3.2), those being: the effect of wind power in recreational municipalities; students awareness regarding wind power technology and policy; their attitudes towards energy export; their economic worldview; the importance of emissions reductions and nature preservation; how severe climate change is and the degree to which it is man-made; if students have experience with power installations in their home municipality; how highly students value untouched nature; whether they are members of environmental organizations; their political affiliation; and their age, gender and study programme. In this section, I will further detail the reasoning behind choosing these variables and how they relate back to previous research.

3.3.1 Dependent variables

The focus of this thesis is on explaining attitudes towards onshore wind power in Norway. There are two main dependent variables. One is the responses to the stage one attitude question (the status quo project), and the other is the responses to the stage two attitude question (the project as presented after the ownership change). In addition to analyzing the effect of ownership models (hypothesis 1) and ownership model change (hypothesis 2), I included a question where the students could choose more freely. This additional dependent variable was intended to expand upon hypothesis 1 and let the students choose between *local and/or regional owners*, *national public owners*, *national private owners* and *foreign owners*.

3.3.2 Independent variables

Recreational municipalities

After gauging the students' attitudes towards the dependant variables, the questionnaire presented them with a scenario where the hypothetically planned wind power project was relocated to a recreational municipality often visited by the individual student. Ek and Persson (2014) found that people were more negative towards wind power installations if it affected areas where they had summer houses or where there was untouched nature used for recreational purposes. In the questionnaire, the hypothetically planned wind power project was stated to be visible from the area the student may have

in mind (i.e. their lodge, preferred ski resort or nature trail). The purpose was to see how the attitudes towards the project would change, if any, when placed in an individual's own "recreational municipality".

Technology and policy awareness, and attitudes towards onshore- and offshore wind power

A series of questions were asked to measure the students' self-stated awareness about the development in wind power policy and technology, as well as gauging attitudes towards onshore and offshore wind power. The purpose was to see if students saw a positive connection between increased onshore wind power and the reduction of climate gases, and if students concerned with nature preservation strongly preferred offshore wind power over onshore wind power.

Bidwell (2016) found that people who were more educated about wind power had stronger opinions about potential projects, and that being positive towards wind power in general didn't mean one wouldn't be against a local project with local consequences. Increased awareness thus gave an increased ability to argue one's view. Warren et al. (2005) underlines that the "Green on Green" conflict around wind turbines is very much about the reduction of climate gases versus the preservation of untouched landscapes. From that it can be argued that those who care less about limiting climate gas emissions would be more negative towards onshore wind power. And at the same time, it can be deduced that both groups will prefer offshore wind turbines. Thus, students that are negative towards the hypothetical wind power project might still be positive towards offshore wind power in general.

Energy export and worldview

The questionnaire also gauged students' opinions on Norway's role in increasing the share of renewables in the European Union and whether Norway should set stronger limitations on the free flow of goods, people and jobs. Here the purpose was twofold. Firstly, it was to see if those against the notion of Norway being a "green battery" for Europe were more concerned with nature preservation, and whether they expressed a more negative attitude towards the hypothetically planned wind power project overall. Secondly, it was to see if those with a more open economic worldview would be more positive towards having foreign owners in the hypothetically planned wind power project.

Liebe et al. (2017) found that Germans were more negative towards wind power if the electricity produced in their region was exported to other regions. This connects to the idea of distributional justice, where people don't want their local nature to be exploited for the benefit of others. In a macro-

perspective, it is possible Norwegians will initially be sceptical of their untouched nature being developed just so Europeans can have renewable electricity. Similarly, Tabi and Wüstenhagen (2017) found that people with high preference for free-market economics cared less about local ownership or participatory justice in the planning phase. Thus, one could deduce that these people would be more accepting of a foreign company having the majority share in the hypothetically planned wind power project, and be more positive in the face of ownership changes.

Climate change severity, emission reductions, nature preservation and “man-made” climate change

The questionnaire had a series of questions designed to map the students’ attitudes regarding the severity of climate change, the importance of reducing climate gas emissions, the importance of preserving untouched nature and the level to which they agreed with the concept of man-made climate change. The purpose was to see if there was a relationship between the students’ opinions regarding these individual factors and their attitude towards the hypothetically planned wind power project.

Warren et al. (2005) found that “green” views are often juxtaposed against each other. People can be positive towards wind power as a good and cheap source of renewable energy under the right circumstances, but still be against it, as areas suitable for wind power development are often “untouched nature”, with a rich biodiversity. Thus, one can deduce that those who see climate change as a very serious issue, as well as those who highly value future climate gas emission reductions, are willing to sacrifice nature in order to do so. Likewise, those who put nature preservation before all else, might be more negative towards the planned wind power project than those who prioritise cutting emissions. With a decreasing belief in man-made climate change, the perceived need for cuts in climate gas emissions declines, and the gap between “the need for renewable electricity” and “the importance of nature protection” increases.

Home municipality, experience with power installations and the value of untouched nature

Students were asked to state their home municipality and whether they knew of power installations in their home municipality or not. This was done in order to compare the responses from people who grew up in “power municipalities” versus those who didn’t come from municipalities with power generating industries. Additionally, students were asked to state whether they deemed the ability to travel through untouched nature to be of great importance for themselves specifically.

Warren et al. (2005) found that people from Scotland and Ireland, who already have power installations close to their residence, are more positive towards wind turbines than the NIMBY effect would suggest. Likewise, Liebe et al. (2017) point out the existence of a breaking point, where the amount of installed turbines in a local region become too much for people, and they start to see them as an unfair burden compared to the install-base in other regions. Similarly, Ek and Persson (2014) found that people were more negative towards wind power installations if it affected areas they used for recreation.

Environmental organisation memberships and political affiliations

Students were asked whether they were members of a nature preservation organisation or a climate organisation, as well as being asked to state their political affiliation in the form of what parliamentary party they would vote for if an election was held today. The question about environmental organisation memberships was asked so that it could be possible to isolate the responses from these students, as they might have polarising views on the question of ownership and wind power in general. Likewise, the question about political affiliation was asked to see if students who preferred more “green” or center-oriented political parties were more willing to accept the planned wind power project.

From the “Green on Green” debate presented in Warren et al. (2005) it would be natural to assume that people who are sufficiently engaged in the debate, to the point where they enlist in different environmental organisations on different sides of the issue, will have polarising opinions around the subject of this thesis. Additionally, Tabi and Wüstenhagen (2017) found that political affiliation affected people’s attitude towards ownership models, where conservative respondents largely preferred local owners. In addition, Linnerud et al. (2019) found that Rural party (Senterpariet) voters were more positive towards hydropower. They also found that those who voted for the red-green or blue-blue party coalitions in Norway were more positive towards hydropower than those who voted for smaller parties, left or right of the political centre.

Age, gender and study programme

The final questions of the survey had the students state their age, gender and study programme. The purpose was to investigate whether younger students and women were more positive towards the hypothetically planned wind power project than older students and men. Lastly, it was interesting to see

whether there emerged a clear pattern in attitudes towards the hypothetically planned wind power project, in connection with the different study fields.

Devine-Wright (2007) found that young people <24 and old people >65, were more supportive of renewable energy development than middle-aged people. Liebe et al. (2017) found that Polish women were more positive towards wind power projects than men, while gender was irrelevant for the acceptance of wind power in Germany, where it was more widespread. Tabi and Wüstenhagen (2017) found that women put a greater emphasis on the ownership models of hydropower projects. Meanwhile, Devine-Wright (2007) found that women have a greater degree of support for new development in renewable energy than men, but that they were also more negative towards wind power.

As for study fields, there is a lack of prior research with clear answers regarding attitudes towards renewable energy or wind power. However, it would be natural to assume that students who study natural sciences perhaps would be more positive towards wind power, reductions in climate gas emissions and large-scale adoption of renewable energy in general. It can also be deduced that they would be more open to Norway exporting clean energy to Europe, when that indirectly could give them job opportunities in the future. Likewise, one can imagine that those who study tourism would be more negative towards wind power as they might feel it will negatively affect their industry. Additionally, those who study economics could also be more positive towards the project, as they might focus more on the monetary benefits and the potential future economic growth from investing in renewable energy.

3.4 Statistical analysis

In order to investigate whether there is a casual connection between ownership models and attitudes towards wind power, the results from the questionnaire needed to be statistically analysed.

Furthermore, the results needed to be put to a statistical test to verify that they could be generalised to a wider population. To achieve this, I used descriptive data analysis (section 3.4.1) to find casual connections and chi-square tests (section 3.4.2) to verify the statistical significance of the results.

3.4.1 Descriptive data analysis

I used descriptive data analysis to find patterns in how attitudes towards onshore wind power in Norway are influenced by ownership models, ownership changes and other independent variables.

The most central results to answer the research questions and main hypothesis, are found in table 1, table 2 and table 8. Table 1 shows the combined mean results from the attitudes towards ownership models as well as the mean attitudes expressed towards the stage 1 and stage 2 prospects. The other two main tables present the overall attitudes towards ownership models (table 2) and the overall attitudes towards a change in the status quo (table 8).

3.4.2 Statistical analysis

To formally test whether attitudes towards onshore wind power in Norway are influenced by ownership models and ownership changes, I used a Chi-square test. If these relations are statistically significant, the findings can be generalized towards a broader population. In this case the broader population is young and educated people. Students at HVL are then used in this experiment as a proxy for this segment of the Norwegian population.

Chi-square tests produces a “asymptotic significance” number, which determines whether the differences in the results versus the statistically expected results are different enough to be taken as significant. If this asymptotic significance number is between 0 and 0,05, then the null hypothesis can be discarded, and the results can be seen as representative for the sample population. Thus, for the purpose of testing hypothesis 1, about whether ownership models influence people’s attitudes towards hypothetical wind power projects, the chi-square tests are used to determine if the results are robust enough to be generalised to the broader population. Likewise, to test hypothesis 2, about whether there is a cognitive bias of preferring the status quo when faced with a change in ownership for the hypothetical wind power project, the chi-square tests are used to indicate whether the results from the questionnaire can be generalized to the wider population, and therefore proving the existence of a status quo bias.

4 Results

4.1 Overview

Table 1 shows the combined mean results from the attitudes towards ownership models as well as the mean attitudes expressed towards the stage 1 and stage 2 prospects. The results reflect the 1-11 point Likert scale of the SurveyXact program's data output, meaning an "attitude score" of 6 is the middle point of the scale.

Looking at the students' attitudes towards a hypothetical wind power project, there are two main takeaways from table 1. Firstly, that a national ownership model has little impact on the overall attitude towards the wind power project in either stage 1 or stage 2. With a national ownership model, the projects "attitude score" is nearly identical in both stage 1 (6,2 points) and stage 2 (6,32 points). Secondly, the "attitude score" towards a project with a foreign ownership model starts out lower in stage 1 (5,5 points) and sinks even further in stage 2 (3,74 points). Diving deeper, national ownership's popularity only grows by 0,12 points between stage 1 and stage 2, and the standard deviation, showing how concentrated the attitudes are around the mean, is virtually unchanged (2,73 point to 2,75 points). With foreign ownership, however, the results are quite different. Here, the standard deviation becomes smaller (2,65 point to 2,19 points) in stage 2, meaning attitudes are more centred around the mean. This indicates that more students have a negative attitude towards a hypothetically planned wind power project in their home municipality if said project has an ownership model dominated by foreign companies.

Looking simply at the summed results on table 1, the attitudes towards the hypothetically planned wind power project are more negative in stage 2 (by 0,8 points), but with a larger standard deviation (growing by 0,9 points in stage 2). This points towards the existence of a status quo bias. The differences in the summed attitudes towards national- (6,26 points) and foreign (4,62 points) ownership models is also quite large, and with a smaller standard deviation for the attitudes towards the project with a foreign ownership model. This indicates that students are more negative towards a wind power project in their home municipality if said wind power project has a foreign dominated ownership model.

Table 1: Mean attitudes towards ownership models compared to mean attitudes in stage 1 and stage 2.

		Stage 1	Stage 2	Sum
National owner	Mean	6,2	6,32	6,26
	St. dev	2,73	2,75	2,74
	N	186	187	373
Foreign owner	Mean	5,5	3,74	4,62
	St. dev	2,65	2,19	2,59
	N	187	186	373
Sum	Mean	5,8	5,0	
	St. dev	2,71	2,80	
	N	373	373	

4.2 Hypothesis 1: Ownership model preference

In this section, I will present the results and tests related to hypothesis 1, about whether ownership models affect people's attitudes towards the hypothetical wind power project. Table 2 shows how the overall attitudes towards the hypothetical wind power project is affected by ownership models, combining responses from both Stage 1 and Stage 2. In addition, Table 3 shows the chi-square test of the data in table 2.

Overall, far more respondents (189) had a negative attitude towards a hypothetical wind power project with a foreign dominated ownership model, than were negative towards a project with a national dominated ownership model (103). If ownership models were irrelevant, as per the null hypothesis, the expected count for an overall negative attitude would be closer to 146 per ownership model. Likewise, the expected count for an evenly split positive attitude would be 91 per ownership model. Instead, the data show that those positive towards the wind power project strongly favoured a national dominated ownership model, over a project dominated by a foreign owner, by a count of 128 versus 54. In total, more people were negative towards the project (292), than positive (182), but the total amount who stayed neutral (272) was almost as large as those who were negative. The chi-square tests in table 3 gave an asymptotic significance of 0,00, thus supporting hypothesis 1. Or more precisely, with a 5% significance level, I can reject the null hypothesis saying that ownership does not influence attitudes toward wind power projects.

Table 2: How ownership models affects the overall attitude, combining responses from both stage 1 and stage 2.

Ownership model's effect on attitude		National	Foreign	Total
Negative	Count	103	189	292
	Expected count	146	146	292
Neutral	Count	142	130	272
	Expected count	136	136	272
Positive	Count	128	54	182
	Expected count	91	91	182
Total	Count	373	373	746
	Expected count	373	373	746

Table 3: Chi-Square tests of table 2 data

Chi-Square Tests	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	55,946 ^a	2	,000
Likelihood Ratio	57,215	2	,000
Linear-by-Linear Association	55,847	1	,000
N of Valid Cases	746		
a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 91,00.			

In this next part I will go from looking at the overall responses to stage 1 and stage 2, to looking at the responses to stage 1 and stage 2 separately. Looking only at stage 1 (table 4), the attitude data results are much closer to the expected count and with a much smaller attitude difference between the two wind power projects. Still, the results do show that ownership matters, with a slight edge to national ownership, although the relation is now only borderline significant (table 5).

Diving into the details for stage 1 (table 4), the data count is closer to the expected count for both negative and positive responses towards the wind power project, but with a small preference for national owners. Of those who were negative towards the project in stage 1, most of them were presented with a foreign dominated ownership model (69 vs 52). Looking at the positive counts for stage 1, most are from respondents presented with a national owner. 62 respondents were positive towards a national dominated ownership model, versus only 43 who were positive towards a foreign dominated ownership model. In total, slightly more respondents had a negative attitude towards the wind power

project in stage 1, with 121 being negative and 105 being positive. Most were neutral, with 147 respondents not having a preferred ownership model in stage 1. Rounding down the asymptotic significance (table 5) to 0,05, the chi-square test show the results as significant, rejecting the null hypothesis and supporting hypothesis 1.

Table 4: How ownership models affect attitudes towards the wind power project, including only responses from stage 1.

Ownership model's effect in stage 1		National	Foreign	Total
Negative	Count	52	69	121
	Expected count	60,3	60,7	121
Neutral	Count	72	75	147
	Expected count	73,3	73,7	147
Positive	Count	62	43	105
	Expected count	52,4	52,6	105
Total	Count	186	187	373
	Expected count	186	187	373

Table 5: Chi-Square tests of table 4 data

Chi-Square Tests	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	5,885 ^a	2	,053
Likelihood Ratio	5,912	2	,052
Linear-by-Linear Association	5,723	1	,017
N of Valid Cases	373		
a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 52,36.			

Looking only at stage 2 (table 6), the attitude data results are more polarised, with a much larger difference between the two wind power projects. The data count is far from the expected count for both negative and positive responses towards the wind power project, and there is a large spike in negative attitudes against the project with foreign owners. Here, the results show that ownership matters, with a big edge to national ownership.

Diving into the details for stage 2 (table 6), most of those who had a negative attitude towards the project were presented with a change to a foreign dominated ownership model (120 vs 51). Looking at

the positive counts, most are from respondents presented with a national owner in stage 2. After being presented with an ownership change, 66 respondents were positive towards a new national dominated ownership model, versus only 11 who were positive towards a new foreign dominated ownership model. In total, far more respondents had a negative attitude towards the wind power project in stage 2, with 171 negative, 77 positive and 126 neutral. The chi-square tests (table 7) show the asymptotic significance as 0,00, rejecting the null hypothesis and supporting hypothesis 1.

Table 6: How ownership models affect the attitudes towards the wind power project, including only responses from stage 2.

Ownership model's effect in stage 2		National	Foreign	Total
Negative	Count	51	120	171
	Expected count	85,7	85,3	171
Neutral	Count	70	55	125
	Expected count	62,7	62,3	125
Positive	Count	66	11	77
	Expected count	38,6	38,6	77
Total	Count	187	186	373
	Expected count	187	186	373

Table 7: Chi-Square tests of table 6 data.

Chi-Square Tests	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	68,926 ^a	2	,000
Likelihood Ratio	74,040	2	,000
Linear-by-Linear Association	68,643	1	,000
N of Valid Cases	373		
a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 38,40.			

In summary, the statistical tests indicate support for hypothesis 1, in that ownership models are statistically shown to affect people's attitudes towards the hypothetical wind power project. More precisely, the results allow me to discard the null hypothesis, stating that there is no causal connection between ownership models and attitudes towards the hypothetical wind power project. This conclusion counts both for the responses in stage 1 and stage 2 overall, as well as separately, with the results being borderline significant for stage 1.

4.3 Hypothesis 2: Ownership model change

In this section, I will present the results and tests related to hypothesis 2, about whether just a change in ownership models alone is enough to affect people's attitudes towards the hypothetical wind power project. Table 8 shows how the overall attitudes towards the hypothetical wind power project is affected by a change in ownership models, from stage 1 to stage 2, regardless of what ownership model the respondents were presented with in either stage. Such a change is characterised as a change in the "status quo". In addition, table 9 shows the chi-square test of the data in table 2.

Overall, respondents were far more negative (171) than positive (77) in stage 2, after the change in status quo. The number of neutral respondents also sank in stage 2, and there was a large discrepancy between the expected count and the actual count. If ownership change was irrelevant to people's attitude towards the hypothetical wind power project, as per the null hypothesis, then the expected count for negative, neutral and positive attitudes towards the project would be unchanged from stage 1 to stage 2. Instead, the respondents became more negative towards the hypothetical wind power project. Thus, the results in table 8 show that ownership change does matter, and that it does have a negative impact on the respondents' attitude towards the project, indicating a status quo bias.

Looking deeper into the overall attitudes presented after a status quo change (table 8), respondents were still more negative towards the wind power project in total, with 182 being overall positive, 292 being overall negative and 272 being overall neutral. The discrepancy between the expected count and actual results was also much larger for those who had a negative attitude in stage 2, than in stage 1. The chi-square tests (table 9) show asymptotic significance of 0.001. This makes these results significant, meaning I can reject the null hypothesis and add support for hypothesis 2.

Table 8: Attitudes towards the wind power project after a change in the status quo, regardless of ownership model.

Overall attitudes after a status quo change		Stage 1	Stage 2	Total
Negative	Count	121	171	292
	Expected count	146	146	292
Neutral	Count	147	125	272
	Expected count	136	136	272
Positive	Count	105	77	182
	Expected count	91	91	182
Total	Count	373	373	746
	Expected count	373	373	746

Table 9: Chi-Square tests of table 8 data.

Chi-Square Tests	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	14,649 ^a	2	,001
Likelihood Ratio	14,710	2	,001
Linear-by-Linear Association	13,272	1	,000
N of Valid Cases	746		
a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 91,00.			

In this next part, I will go from looking at the overall responses towards ownership change from stage 1 to stage 2, to instead look at how the attitude towards a wind power project with a national dominant- or foreign dominant ownership model differs between stage 1 and stage 2. This will shed light on whether those who were presented with a wind power project with a certain ownership model in stage 1 (i.e. national dominant) had a different attitude towards the project than those who were presented with a project with the same ownership model in stage 2.

Looking only at the attitudes towards a wind power project with a national dominant ownership model (table 10), there is a clear indifference in people's attitudes when comparing the stage 1 and stage 2 results. The results are more or less equal in both stages, between all three levels of attitude. The results are also very close to the expected counts in both stages. The attitude towards a hypothetical wind power project with national dominant owners does not differ whether that ownership model is presented in stage 1 or stage 2. Thus, those who were presented with a foreign dominant ownership model in stage 1 did not "score" the nationally owned wind power project in stage 2 markedly higher than those who were presented with national dominant ownership model in stage 1. Ergo, people have a nearly identical attitude towards a wind power project with a national dominant ownership model whether it was presented to them in stage 1 or stage 2. The chi-square test (table 11) show an asymptotic significance of 0,92, meaning the results aren't significant and don't support hypothesis 2. This means that the null hypothesis cannot be discarded and that being presented with a national dominant ownership model in stage 2 does not in itself negatively influence the respondent's attitude towards the project. Thus, there is no status quo bias.

Table 10: Attitudes towards the wind power project, in both stages, after being presented with a national ownership model.

Attitude towards project w/national owners		Stage 1	Stage 2	Total
Negative	Count	52	51	103
	Expected count	51,4	51,6	103
Neutral	Count	72	70	142
	Expected count	70,8	71,2	142
Positive	Count	62	66	128
	Expected count	63,8	64,2	128
Total	Count	186	187	373
	Expected count	186	187	373

Table 11: Chi-Square tests of table 10 data.

Chi-Square Tests	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	,160 ^a	2	,923
Likelihood Ratio	,160	2	,923
Linear-by-Linear Association	,106	1	,745
N of Valid Cases	373		
a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 51,36.			

Looking only at the attitudes towards a wind power project with a foreign dominant ownership model (table 12), there is a clear difference between being presented to a project with foreign dominant owners in stage 1 and in stage 2. Here the results show that the attitude towards a hypothetical wind power project with a foreign dominant ownership model is much more negative when that option is presented in stage 2, as a change in the status quo. The attitudes towards a hypothetical wind power project with foreign dominant owners is more positive if it is the status quo option presented in stage 1.

There is initially a negative leaning attitude towards a hypothetical wind power project with foreign dominant owners, if presented in stage 1 as the status quo. Here, 69 respondents are negative versus 43 being positive. The attitude towards a project with foreign ownership worsens significantly if it is presented as a status quo change, in stage 2. Here, the negative-to-positive ratio dips to 120 versus 11. This shows a clear status quo bias, where the respondents aren't that fussed with the presence of a foreign dominant ownership model in stage 1, but if they've been presented with a national dominant

ownership model in stage 1, and this changes to foreign dominant ownership model in stage 2, they display a strong negative change in attitude towards the hypothetical wind power project. The chi-square test (table 13) show an asymptotic significance of 0,00, meaning the results are significant, discarding the null hypothesis and become supporting of hypothesis 2.

Table 12: Attitudes towards the wind power project, in both stages, after being presented with a foreign ownership model..

Attitude towards project w/foreign owners		Stage 1	Stage 2	Total
Negative	Count	69	120	189
	Expected count	94,8	94,2	189
Neutral	Count	75	55	130
	Expected count	65,2	64,8	130
Positive	Count	43	11	54
	Expected count	27,1	26,9	54
Total	Count	187	186	373
	Expected count	187	186	373

Table 13: Chi-Square tests of table 12 data.

Chi-Square Tests	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	35,799 ^a	2	,000
Likelihood Ratio	37,287	2	,000
Linear-by-Linear Association	35,699	1	,000
N of Valid Cases	373		
a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 26,93.			

To summarise the effects of ownership model change, the overall results (table 8) show that the attitudes towards the hypothetical wind power project become much more negative in stage 2, indicating a status quo bias. However, when separating the results based on ownership models, I found that attitudes towards a project with a national dominant ownership model remained roughly the same whether it was presented in stage 1 or stage 2. Whereas attitudes towards a project with a foreign dominant ownership model was far more negative when presented in stage 2, than in stage 1, this negative stage 2 shift is so large that it has a major influence on the overall statistics. This then makes it

appear that people have a much more negative attitude towards the hypothetical wind power project in stage 2 overall, regardless of ownership models, when that in fact might not be the case.

Those who were presented with a status quo change to a national dominant ownership model in stage 2, after having a project with a foreign dominant ownership model as their stage 1 status quo scenario, did not score the project with a national dominant ownership model lower than the project with a foreign dominant ownership model. If there was to be a status quo bias, then the change to a national dominant ownership model should have negatively affected their attitude towards the hypothetical wind power project. This did not happen. Thus, these results do not discard the null hypothesis, nor do they add support for hypothesis 2.

However, the attitude towards a hypothetical wind power project with a foreign dominant ownership model is quite different whether it is proposed in stage 1 or a stage 2. If a foreign dominant ownership model is introduced as a status quo change in stage 2, respondents have a far more negative attitude towards the wind power project, indicating they care much more for the status quo if that status quo project includes a national dominant ownership model. This makes it difficult to conclude whether the perceived status quo bias presented in table 8 is genuine or whether the negative attitude towards a hypothetical wind power project with a foreign dominant ownership model is so large that it influences the overall statistics in such a way as to be misleading. Then again, the chi-square test in table 11 showed the results in table 10 to not be significant, meaning they cannot be generalised to a wider population. This puts into doubt the validity of those specific results about national ownership, and strengthens the evidence for a status quo bias, as presented in table 8 and table 12. I, however, feel these results are inconclusive, as a national dominant ownership model is clearly more popular than foreign dominant ownership model, when it comes to attitudes towards the hypothetical wind power project (see sections 4.1 and 4.2). This means there maybe shouldn't be a case for a status quo bias. However, it is still possible for people to prefer national ownership and dislike change in general, without overall scoring a hypothetical wind power project with a national dominant ownership model much lower than one with a foreign dominant ownership model, so the existence of a status quo bias is still very possible.

4.4 Other findings

Of the many independent control variables put to the test in the questionnaire (see section 3.3.2), not all gave conclusive results. For instance, very few students “agreed” to statements about having a good amount of knowledge about wind power in general or about the plans for wind power development in Norway, meaning I could not compare those results to other data in any meaningful way. As for the importance of preserving untouched nature versus combating climate gas emissions, there wasn’t any indication that students saw one issue as more pressing than the other. Both issues were just as highly rated, and the great majority saw climate change as a serious man-made issue that required action. Few students were members of environmental organisations and most of the students were between 19 and 24. Crosschecking for age and gender did not show any meaningful differences in student responses. Presented below are findings that I’ve deemed noteworthy of discussion.

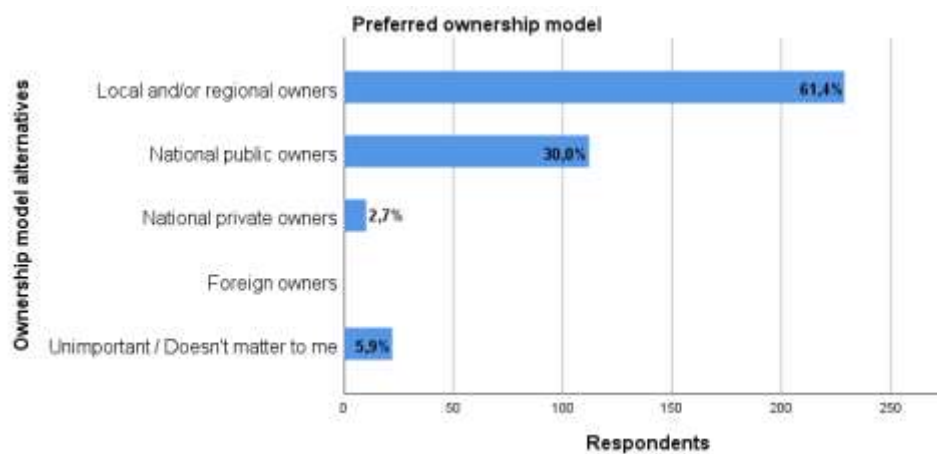


Figure 1: Students’ preferred ownership model for the hypothetical wind power project, when given a broader set of alternatives.

When presented with a broader set of alternatives regarding possible ownership models (figure 1), 61,4% of the students preferred the hypothetical wind power project to have local and/or regional owners, with 30% preferring national public owners.

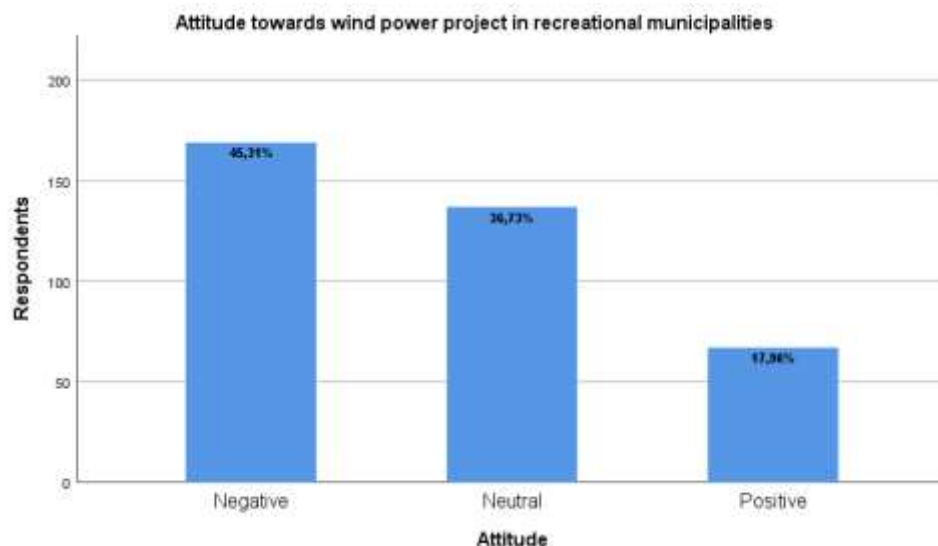


Figure 2: Students' attitude towards the hypothetical wind power project being built in their recreational municipality.

When presented with a scenario where the hypothetical wind power project was relocated to a recreational municipality often visited by the individual student, and with the turbines being visible in the area the student had in mind (i.e. their lodge, preferred ski resort or nature trail), their attitude towards the project was mostly negative (45,31%) to neutral (36,7%) (figure 2). This overall negative attitude towards wind power in recreational municipalities also closely mirrors the overall negative attitude towards the hypothetical wind power project with a foreign dominant ownership model.

The students were mostly positive to Norway exporting renewable energy to the European Union. Nearly two thirds of the students agreed to the idea, one third of the students were neutral and the rest were against it. When asked if Norway should invest more into offshore wind power, rather than onshore, the results were almost identical. Comparing the attitude effect of prior experience with energy installations in one's home municipality, I found that students are more willing to accept a hypothetical wind power project only if it has a national dominant ownership model. If the suggested owners are foreign companies, prior experience does nothing to curb a negative attitude towards the project.

Political affiliation matters, but not in all cases. Dividing the attitudes towards the project by ownership models and political affiliation, I found that national ownership is preferred across the political spectrum with varied attitudes, while foreign ownership is resoundingly unpopular across the board. Green Party voting students were the most positive towards national ownership and were the only group who really seemed hesitant when faced with foreign ownership. The most neutral attitudes towards a project with national ownership are presented in students preferring the Labour Party and the rural Centre Party, with the polarising views on each side being just as large. Those preferring the Conservative Party are

largely split but leaning positive towards a project with national owners. A third of the students did not state their political affiliation.

Looking at study fields, the preference for a wind power project with a national ownership model is again clear, with attitudes towards a project with foreign ownership being negative across all disciplines. Interestingly, when presented with a national ownership model, attitudes amongst Natural Sciences students is split almost identical between “negative”, “neutral” and “positive”, while those studying Sports & Nordic outdoors have a far more positive attitude towards the project. The rest of the groups were either split, leaning positive, or mostly neutral, towards a project with national a dominant ownership model

5 Discussion

5.1 Hypothesis 1: Ownership model preference

The first main research question of this thesis was: “Is the social acceptance of wind power projects influenced by ownership models?”, with its connected hypothesis being that people would have more positive attitudes towards the hypothetical wind power project if the owners were said to be mainly national companies as opposed to foreign companies.

When the students were presented with a case regarding a hypothetical wind power project situated in their home municipality, they had an overall more negative attitude towards the project if the ownership model was dominated by foreign owners. If the project was dominated by national owners, the attitudes were more evenly spread out, but still more positive than negative. In stage 1, before the students knew an opposite option was on the table, ownership models had seemingly little impact on their attitude towards the project. Students still preferred a national dominant ownership model, but not by a wide margin. In stage 2 students became far more negative towards foreign ownership, whereas the attitude towards a project with national owners remained approximately the same regardless of which stage it was introduced in. These results confirm hypothesis 1, and fits with the results from previous studies.

Studies by Ek and Persson (2014) and Liebe et al. (2017) have indicated that people would be more open to renewable energy installations if the owners were local or regional companies, with national companies coming in second and private ownership being mostly frowned upon. Tabi and Wüstenhagen (2017) also found that people in general had a sentiment that foreign investors were more likely to “take the money and run” than organizations embedded in the local or regional community. This pattern of

trusting what is closest to one's own sense of control and common ownership, and distrusting of outsiders, fits well with the results of my questionnaire. National companies represent that which is known and the new foreign companies coming into the country represent the unknown, or as Linnerud et al. (2019) put it; national companies represent an established "good" and people have a "regret avoidance bias", where they want to avoid taking a decision they might regret later. Having companies dominated by foreign owners running large scale Norwegian energy installations could simply be too much of an abrupt shift in how things are done. Norway has a long history with national and local companies running hydropower installations, transferring revenue to local municipalities and to the government. From my results, people do not seem very inclined to accept any major change to this arrangement and therefore will not accept foreign companies controlling large wind power projects.

5.2 Hypothesis 2: Ownership model change

The second main research question of this thesis was: "Does a change in ownership reduce acceptance of wind power projects, regardless of the previous ownership model?", with its connected hypothesis being that a change in ownership model for the planned wind power project (all else equal), would by itself influence people's attitudes towards the project.

When the students were presented with an ownership change to the hypothetical wind power project situated in their home municipality, the results show that they had an overall more negative attitude towards the project. While that seems to confirm the second hypothesis of change itself being enough to influence people's attitude towards the project, going further into the details tell another story.

Comparing the attitudes towards the hypothetical wind power project with national ownership for both stage 1 and stage 2, the results showed that a stage 2 project dominated by national ownership was not markedly more- or less popular than a stage 1 project dominated by national ownership. Furthermore, when it became apparent to the students that they did in fact have a choice, they made it clear that they did not want a foreign dominated ownership model. However, since students really disliked the idea of foreign ownership in stage 2, one would expect that those presented with a foreign dominated ownership model as their status quo option in stage 1 would subsequently rate a project with a national dominated ownership model higher, to compensate, in stage 2. This did not happen. Therefore, when it comes to a hypothetical wind power project dominated by national owners, there is no status quo bias, as the attitude towards a project with national ownership is mostly the same in stage 1 and stage 2, and much more popular than a project with foreign ownership. However, the students who were presented

with a national dominant ownership model in stage 1, and subsequently presented with a foreign dominant ownership model in stage 2, had such a negative attitude towards the hypothetical wind power project in stage 2, that it shifted the overall attitude statistics. Such a large shift in opinion seemingly does speak in favour of a status quo bias.

Linnerud et al. (2019) found that people had a status quo bias regarding change between local or national owners of a hydropower plant. Both these options have their potential advantages and disadvantages, a long history in the Norwegian energy market and they're both "known goods" to the average Norwegian. Thus, they are of a somewhat equal value. In the prospect presented to the students in my questionnaire however, only one of the two ownership model options are a "known good", as national ownership of energy installations is the status quo in Norway. Foreign companies taking over a project run by national companies represents a big change to the established status quo, and is therefore a source for much uncertainty when one is forced to evaluate a hypothetical wind power project. As opposed to the ownership model options given to Linnerud et al. (2019)'s questionnaire respondents, the two ownership model options given to my questionnaire respondents are not of a somewhat equal value and thus combined cannot produce a traditional status quo bias. Meaning, there is not a sufficient level of indifference towards the ownership model options necessary to have a proper status quo bias, where people are negative towards a change in ownership models regardless of what model came before. The ownership models simply matter too much in this case. Thus, I interpret these results to not confirm hypothesis 2, and to not be similar to the results presented by Linnerud et al. (2019).

5.3 Other findings

Unsurprisingly, when given a broader set of alternatives, the questionnaire results showed a clear preference for local and regional ownership, meaning students would have preferred the hypothetical wind power project to be controlled by actors they know and trust. This validates the previous research by Ek and Persson (2014), Liebe et al. (2017), Stigka et al. (2014) and more, who've all found evidence for greater support of local ownership with renewable energy projects.

Additionally, the importance of preserving untouched nature as well as securing recreational opportunities, is represented in the students' attitude towards wind power in their preferred recreational municipality. Here, the results showed that the attitude towards wind power in recreational

municipalities is almost as negative as the attitude towards a project with a foreign dominant ownership model. This fits with the results presented by Ek and Persson (2014), stating that people were more negative towards wind power installations if the turbines affected nature that they used for recreational purposes or areas where they had summer houses.

Interestingly, students are mostly positive to Norway exporting renewable energy to the European Union. This, along with the more positive attitude towards a national ownership model for wind power projects, points towards Norway not having reached the saturation point when it comes to renewable energy installations intended for export to the European market. This is at odds with Liebe et al. (2017)'s finding that Germans were more negative towards wind power if the electricity produced in their region was exported to other regions. The question to my respondents was not simply about export to a neighbouring region, but to other countries, with the responding attitude being overly positive. Similarly, the students' positive attitude towards renewable energy export is replicated in their attitude towards offshore wind power, which they seem to prefer greatly over onshore wind power. This high approval validates Warren et al. (2005)'s finding, that those who put untouched nature ahead of onshore wind are about just as likely to accept an offshore wind power plant as those who prefer offshore wind power in general.

Whereas Warren et al. (2005) found that people who had wind power installations close to their homes were more positive towards wind turbines, and the questionnaire results showed a positive connection between attitude towards a national dominant ownership model and students' experience with renewable power installations in their home municipality, the effect did not carry over if the project had a foreign dominant ownership model. Thus, even the students from electricity producing municipalities immediately reached the "breaking point" in exposure to wind power, found by Liebe et al. (2017), where the install burden of turbines became unacceptable, contradicting the seemingly overwhelming openness to renewable energy export.

Judging by the results reported by Tabi and Wüstenhagen (2017) and Linnerud et al. (2019), political affiliation seems to play a larger role in affecting people's attitude towards ownership models when comparing local- and national ownership, than comparing national- and foreign ownership. Whereas Tabi and Wüstenhagen (2017) found conservatives to have larger preference for local owners over national owners, the questionnaire results showed a broad acceptance for national owners across the political spectrum, with the only outliers being that students who preferred the Labour Party and Centre Party were more neutral towards national ownership than those who preferred the conservative party,

who were more positive. Foreign owners, on the other hand were simply universally disliked. The questionnaire results also showed that Green Party voters had a clear preference for a hypothetical wind power project with national ownership, yet that they were also split when presented with a foreign dominant ownership model, as opposed to the other groups who all became overwhelmingly negative towards a hypothetical wind power project with foreign owners. Interestingly, sorting the students by study fields gave a somewhat different output, with most groups being either split on the prospect of a national ownership model or having a dominating neutral attitude. This split then completely disappears, when foreign ownership is introduced, giving a negative reaction across all study fields. That Natural Sciences students are split on wind power (as long as it is nationally owned) is somewhat understandable, as they might see it from different disciplines. Landscape architects and geologists might care more for preserving nature, while those studying renewable energy could be more focused limiting climate gas emissions. As for the Sports & Nordic Outdoors students, the result is quite peculiar, as I would expect these students in particular to care for the preservation of untouched nature.

5.4 Robustness

In this section I will go into how things could have been done differently while working on this thesis. I'll mainly focus on sampling issues, data processing and framing.

When it comes to sampling, the selection of classes for the experiment was not directly randomized, although, in consultation with my supervisor, the seemingly random yes-responses from lecturers agreeing to let me conduct the questionnaire was deemed random enough on its own. The nature of multi-class subjects also made it so separating classes would be difficult, wasting the excluded student's time and overall not worth the effort. Although in hindsight, the results could have been further randomized by randomly selecting which respondent's data would be used. Furthermore, it would have eliminated any hidden bias I may have had when arranging my class visits.

As for the results, they could maybe be interpreted differently if they were classified differently. If I had added a group on each side of the recoded Likert scale, making it a 5-point scale instead of a 3-point scale, the data might have shown a more nuanced image of both the effect of ownership models as well as the indicators of a status quo bias. Additionally, had the foreign ownership model been juxtaposed against a *private* national ownership model, the differences in attitudes towards the two hypothetical projects may not have been so stark, and a status quo bias may have been more easily detectible.

6 Conclusion and policy implications

In this thesis, I did a framing experiment where I investigated whether there was a causal connection between national- or foreign dominated ownership models for wind power and people's attitude towards a hypothetical wind power project set in their home municipality. I also investigated whether people had a "status quo" bias, where simply a change in ownership models negatively affected their attitude towards the hypothetical project, regardless of the previous ownerships model. If Norway wants to increase their share of renewable energy further, to fulfil their climate mitigation goals and transition to a low-carbon society, and we specifically want that increase to come in the form of more onshore wind power, then the results of my thesis point towards a few important aspects that needs to be considered to ensure a smoother transition.

Looking solely at the topic of ownership, people prefer that national companies have a controlling stake in wind power projects and are more far more negative towards foreign ownership models. However, since nearly all investment into onshore wind has experienced foreign companies heavily involved, excluding them is not a good option for ensuring a quick transition. Therefore, including foreign companies, while making sure that national companies have the controlling stake is important for securing a positive attitude towards these projects amongst the public. Down the line, as the partnering foreign companies are given time to prove themselves with their innovations, stable cooperation and potential acts of goodwill towards local communities, people might be more open to allowing projects with less national control, but as of right now that is certainly not the case.

However, since my results also show that people are less negative towards a project with foreign owners if it is introduced as the status quo option, then it is important to ensure that the public is informed of such decisions from the very beginning of the planning process. For if a foreign dominant ownership model is the only development option, as it potentially might be in some areas, then it is even more important that this does not come as a surprise to the public, neither as a status quo option nor as a result of ownership change. The public must be allowed to participate from early stages of development, and if ownership change is an option down the line, then they must be made aware of it immediately. This should be done both to minimise opposition, as well as to gauge whether ownership change is even acceptable for the local population. Simply put, openness and inclusion are the key to ensuring a smooth transition.

Additional results also show that people are mostly positive towards the idea of Norway exporting renewable power to the European Union, that offshore wind power is greatly preferred over onshore

wind power and that nature preservation is highly important, as well as keeping wind power development away from recreational municipalities. People were in fact more negative towards the notion of developing wind power in recreational municipalities than they were to developing wind power in their own home municipality. Furthermore, while experience with energy installations in one's home municipality did result in a more positive attitude towards a hypothetical wind power project with a national dominant ownership model, this did not carry over to projects with a foreign dominant ownership model, where the attitudes were far more negative.

As stated in the methodology chapter (section 3), my thesis was modelled after the framing experiment study done by Linnerud et al. (2019)'s, which focused on how attitudes towards hydropower was affected by national- and local ownership and by a change in ownership models. Whereas they found evidence for a status quo bias, where people were negative towards ownership change regardless of their introduction sequence, my findings on the topic were not as straight forward. I did find that people overall were more negative towards the hypothetical wind power project after being introduced to a change in ownership, but I also found that attitudes towards a project with a national dominant ownership model remained mostly the same in both stages, whereas a project with a foreign dominant ownership model became much more unpopular in stage 2. Where the initial overall result seemed to confirm the existence of a status quo bias, separating and comparing the results for national and foreign ownership models respectively to their stage 1 and stage 2 counterparts, show that the negative reaction is only present when going from a national- to a foreign dominant ownership model. This makes concluding for a presence of a status quo bias inconclusive at best.

Now, this still does fit with Tversky's prospect theory (Kahneman, 1979) of "loss aversion", cited by Linnerud et al. (2019) (see section 2.2), which explains that people tend to focus on the negatives when confronted with a change in ownership. As national ownership is the norm, or the "known good", for energy installations in Norway, with hydropower being owned by large national companies or small local operations (which Linnerud et al. (2019)'s study compared the attitudes towards), then anything that deviates from that norm is potentially perceived as bad. From this it stands to reason that a change from a foreign dominated- to a national dominated ownership model would be perceived as good. Likewise, when one is initially presented with a "known good" national dominated ownership model for a hypothetical wind power project in one's home municipality, and it suddenly changes to an "unknown" foreign dominated ownership model, it stands to reason that this would exacerbate any negative feelings towards such a project. Therefore, when dealing with these specific ownership model options, it is less

important that a change in the status quo is avoided, but rather that the change is not seen as an element of great uncertainty.

In conclusion, when juxtaposing a national dominant ownership model with a foreign dominant ownership model, for a hypothetical wind power plant, I did not find sufficient evidence to collaborate Linnerud et al. (2019)'s finding of a status quo bias. I did find that national ownership is far more popular, likely due to its model being a norm in the Norwegian hydropower industry. Foreign ownership, however, represents a greater uncertainty, with only having a chance of being accepted if it is introduced as the status quo ownership model, and then preferably in an open back and forth dialog between the local community and all involved parties, at an early stage of development.

Additional research could perhaps juxtapose national private ownership with foreign ownership, to see if the attitudes become less polarised when both ownership models represent something unknown and irregular to the norm in the Norwegian energy industry, as national private ownership is less common than proper national ownership. If clear evidence for a status quo bias is found in such a scenario, then it would confirm my thoughts regarding the need for both ownership model options to be of a somewhat equal value. It would also be interesting to dive deeper into why people have negative or positive attitudes towards certain ownership models, by asking them follow-up questions based on their answers. These could go into themes such as distributional- and procedural justice, loss aversion and regret avoidance. Finally, the sample should be extended beyond students, who represent only the young and highly educated portion of the population.

7 References

- Andersson, A., Lewis, H. Ø., & Holstad, G. (2018). Vinden blåser ut av Norge. *Bergens Tidende*. Retrieved from <https://www.bt.no/btmagasinet/i/1kXvdG/Vinden-blaser-ut-av-landet>
- Bidwell, D. (2016). The Effects of Information on Public Attitudes Toward Renewable Energy. *Environment and Behavior*, 48(6), 743-768. doi:10.1177/0013916514554696
- Devine-Wright, P. J. B. N. a. m. i. o. p. e. w. r. e. t. (2007). Reconsidering public attitudes and public acceptance of renewable energy technologies: a critical review. 15.
- Ek, K., & Persson, L. (2014). Wind farms - Where and how to place them? A choice experiment approach to measure consumer preferences for characteristics of wind farm establishments in Sweden. *Ecological Economics*, 105, 193-203. doi:10.1016/j.ecolecon.2014.06.001
- Ellsberg, D. J. T. q. j. o. e. (1961). Risk, ambiguity, and the Savage axioms. 643-669.
- Goal 7: Ensure access to affordable, reliable, sustainable and modern energy. (2019a). *United Nations Sustainable Development Goals*. Retrieved from <https://www.un.org/sustainabledevelopment/energy/>
- Goal 12: Ensure sustainable consumption and production patterns. (2019b). *United Nations Sustainable Development Goals*. Retrieved from <https://www.un.org/sustainabledevelopment/sustainable-consumption-production/>
- Goal 13: Take urgent action to combat climate change and its impacts. (2019c). *United Nations Sustainable Development Goals*. Retrieved from <https://www.un.org/sustainabledevelopment/climate-change-2/>
- Haakenstad, T. (2019). Varsler omfattende vindmølleutbygging. *NRK*. Retrieved from <https://www.nrk.no/ho/xl/kjemper-en-ensom-kamp-mot-vindmoller-1.12781942>
- Holmefjord, V. K., A. (2019). *Et elektrisk Norge - fra fossilt til strøm*. Retrieved from <https://www.statnett.no/om-statnett/nyheter-og-pressemeldinger/nyhetsarkiv-2019/slik-kan-norge-bli-et-elektrisk-samfunn/>
- IEA. (2017). *International Energy Agency. Key World Energy Statistics*. Retrieved from <https://www.iea.org/publications/freepublications/publication/KeyWorld2017.pdf>
- IPCC. (2018). Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty. Retrieved from <https://www.ipcc.ch/sr15/chapter/summary-for-policy-makers/>
- Jensen, T. (2018, 15.02.2018). Investorene hadde ingen anelse om den massive motstanden rundt vindkraftverket. *NRK*. Retrieved from <https://www.nrk.no/troms/investorene-hadde-ingen-anelse-om-den-massive-motstanden-rundt-vindkraftverket-1.13919067>
- Kahneman, D. J. E. (1979). Prospect theory: An analysis of decisions under risk. 47, 278.
- Leifseth., A. B. (2018, 13.12.18). Mer vindkraft gjør det mulig å fase ut kullkraft Retrieved from <https://www.nve.no/nytt-fra-nve/nyheter-energi/mer-vindkraft-gjor-det-mulig-a-fase-ut-kullkraft/>
- Leiren, M., & Linnerud, K. (2019, 04.03.2019). Lokale forhold og prosess avgjør holdninger til vindkraft. *Klima - Et magasin om klimaforskning fra CICERO*. Retrieved from <https://cicero.oslo.no/no/posts/klima/lokale-forhold-og-prosess-avgjor-holdninger-til-vindkraft>
- Liebe, U., Bartczak, A., & Meyerhoff, J. (2017). A turbine is not only a turbine: The role of social context and fairness characteristics for the local acceptance of wind power. *Energy Policy*, 107, 300-308. doi:10.1016/j.enpol.2017.04.043

- Linnerud, K., Toney, P., Simonsen, M., & Holden, E. (2019). Does change in ownership affect community attitudes toward renewable energy projects? Evidence of a status quo bias. *Energy Policy*, 131, 1-8. doi:10.1016/j.enpol.2019.04.039
- NVE. (2018a). Nasjonal ramme for vindkraft Retrieved from <https://www.nve.no/nasjonal-ramme-for-vindkraft/>
- NVE. (2018b, 28.06.2018). Nasjonal varedeklarasjon 2017. Retrieved from <https://www.nve.no/reguleringsmyndigheten-for-energi-rme-marked-og-monopol/varedeklarasjon/nasjonal-varedeklarasjon-2017/>
- NVE. (2018c). Vannkraftdatabase. Retrieved 18.01.2019, from NVE <https://www.nve.no/energiforsyning-og-konsesjon/vannkraft/vannkraftdatabase/>
- Rygg, B. J. (2012). Wind power - An assault on local landscapes or an opportunity for modernization? doi:<https://doi.org/10.1016/j.enpol.2012.05.004>
- Rypeng, L., & Eilertsen, M. (2018a, 09.11.2018). Internasjonal forskning: Kommunene får lite igjen for vindkraftsatsing. NRK. Retrieved from <https://www.nrk.no/troms/internasjonalt-forskning-kommunene-far-lite-igjen-for-vindkraftsatsing-1.14285049>
- Rypeng, L., & Eilertsen, M. (2018b). Lenket seg fast: – Vindmølleparken må stoppes. NRK. Retrieved from <https://www.nrk.no/troms/lenket-seg-fast-til-anleggsmaskin-i-protest-mot-vindkraftutbygging-1.14283498>
- Stigka, E. K., Paravantis, J. A., & Mihalakakou, G. K. (2014). Social acceptance of renewable energy sources: A review of contingent valuation applications. *Renewable & Sustainable Energy Reviews*, 32, 100-106. doi:10.1016/j.rser.2013.12.026
- Tabi, A., & Wüstenhagen, R. (2017). Keep it local and fish-friendly: Social acceptance of hydropower projects in Switzerland. *Renewable and Sustainable Energy Reviews*, 68(P1), 763-773. doi:10.1016/j.rser.2016.10.006
- Tversky, A., & Kahneman, D. J. T. q. j. o. e. (1991). Loss aversion in riskless choice: A reference-dependent model. *106(4)*, 1039-1061.
- Upham, P., Oltra, C., Boso, À. J. E. R., & Science, S. (2015). Towards a cross-paradigmatic framework of the social acceptance of energy systems. *8*, 100-112.
- Warren, C., Lumsden, C., O'Dowd, S., & Birnie, R. (2005). ♦Green On Green♦: Public perceptions of wind power in Scotland and Ireland. *Journal of Environmental Planning and Management*, 48(6), 853-875. doi:10.1080/09640560500294376
- Wüstenhagen, R., Wolsink, M., & Bürer, M. J. J. E. p. (2007). Social acceptance of renewable energy innovation: An introduction to the concept. *35(5)*, 2683-2691.