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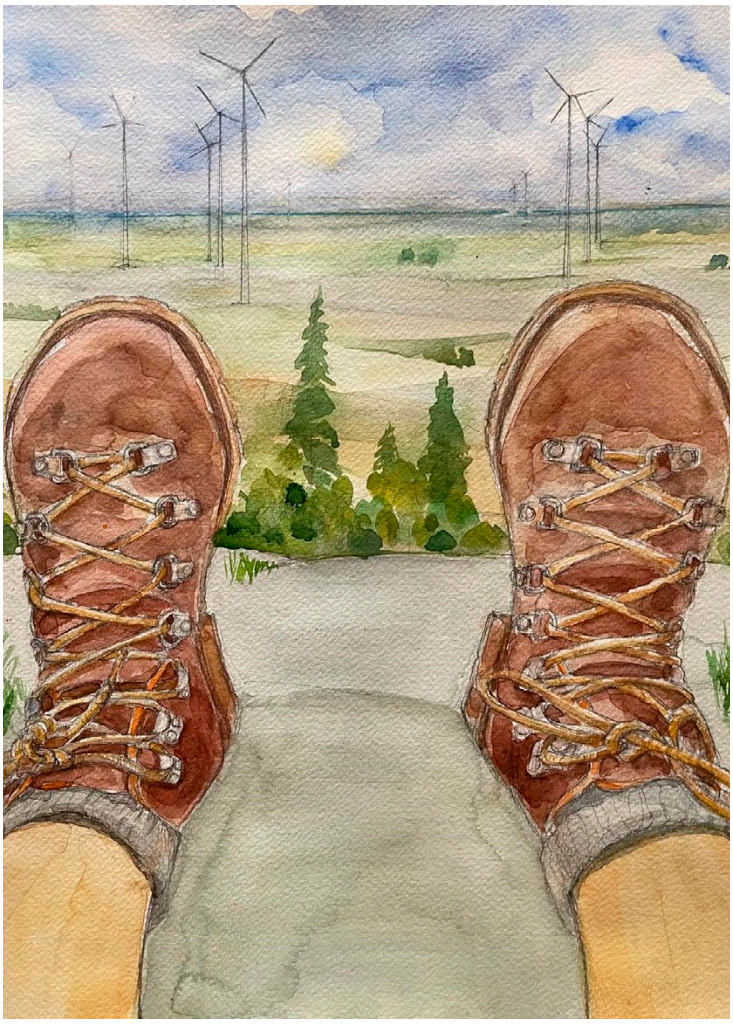
Solène Prince, Tatiana Chekalina, Anke Peters



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by Solène Prince, Tatiana Chekalina and Anke Peters

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Preface

The Vindval research programme (2005–2024) was a collaboration between the Swedish Energy Agency and the Swedish Environmental Protection Agency that aimed to develop and communicate science-based facts about the impacts of wind power on humans, nature and the environment. The programme has produced around 50 research papers and four so-called synthesis reports. In the synthesis reports, experts compiled and assessed overall research results and experiences regarding the effects of wind power, both nationally and internationally, in four areas: human interests (updated in 2021), birds and bats (updated in 2017), marine life (updated in 2022) and land mammals. The results have provided the basis for environmental impact assessments and for the planning and permitting processes associated with wind power installations.

Results from the programme have also been useful in oversight and monitoring programmes, as well as guidance for government agencies. One phase of the programme was focused on planning procedures and the trade-offs between environmental and socio-economic interests. The projects in this phase have developed methods and tools to elucidate these trade-offs.

Vindval have set high standards for the scientific review of research applications and research results, as well as for decisions on approving reports and publishing results.

This report has been written by Solène Prince, Linnaeus University, Tatiana Chekalina and Anke Peters, Mid Sweden University.

The authors are responsible for the content, conclusions and recommendations.

Stockholm May 2024

Kerstin Jansbo
Programme manager Vindval

Contents

Summary

This project focuses on developing a measurement instrument to assess the perceived value of the tourism experience at destinations where there is wind power infrastructure visible in nature. The research involved developing a survey based on literature review, a qualitative study, and insights from sustainable consumer behaviour research. Notably, earlier research established that wind power infrastructure does not deter tourists to visit a destination. In the literature, four factors that influence tourist reactions to wind turbines are identified: visual impact, destination characteristics, tourist's origin and familiarity, and value judgments. The findings of this project reveal that tourists value judgments on sustainability transitions and sustainable consumption influence their perceptions of wind power infrastructure in nature areas. This is shown in both qualitative and quantitative data.

The qualitative research included interviews at four Swedish destinations (i.e., the High Coast destination, Ånge municipality, Dalarna County and Kalmar County), and the findings suggest that tourists generally do not view wind turbines negatively, appreciating them for their contribution to sustainable development and energy independence. Preferences include having few turbines spaced apart and people seem to rely on information gained through social interaction to make judgments on their impact. Furthermore, our study of relevant hashtags on Instagram shows a positive depiction of wind turbines. The qualitative results were used to develop the conceptual framework behind the survey.

The survey was developed to measure pro-environmental and responsible tourism behavior. A short film was included in the survey to enhance familiarity with a destination with wind turbines in its nature. Opinions on wind power are analysed to understand respondents' preferences. The survey also gauges the perceived value of tourism experience in nature areas, incorporating emotional, epistemic, eudemonic, and sustainable destination dimensions. The survey was tested with a panel of Swedish participants with 300 final responses. Results reveal significant relationships between various factors, affirming the survey's validity. Major themes from qualitative analysis persist in quantitative data, emphasizing habituation, sustainability associations, concerns about negative impacts, and the influence of social context on opinions on wind power and its infrastructure in nature areas. Positive opinions on wind power shape attitudes, anticipated emotions, and intentions to visit nature areas at destinations with wind power infrastructure. The survey results show that participants who engage more in outdoor activities tend to have positive opinions on wind power. Those with favourable views of wind power attribute higher value to emotional, epistemic, spiritual and sustainability factors. Results align with the emerging concept of energy tourism, indicating interest in visiting wind power facilities, particularly among those with positive opinions on wind power. The conclusion chapter offers a discussion of the results and of the implications of adapting the survey tool in the real-life context of destinations where tourists might encounter wind power infrastructure in nature areas.

1. Introduction

Over the past decades, wind power infrastructure has been developed at an increasing rate in Sweden. Although the public is mostly positive about wind power, there is also opposition to its expansion across the country (Waldo, 2012). Wind power projects meet resistance from local stakeholders for many reasons, including the perceived negative consequences of their development for tourism activities (Mordue et al., 2020; Ólafsdóttir & Sæþorsdottir, 2019; Rudolph, 2014). These concerns mostly relate to the deterioration of the landscape's aesthetic qualities. Wind power infrastructure can potentially reduce the attractiveness of the landscape for visitors, and thus is perceived to risk discouraging certain tourist segments from visiting. Concerns also relate to having to adapt existing tourism products and marketing strategies or having to develop new ones to compensate for losses in visitation and tourism revenue.

Nature is important for Swedish domestic tourism and attracts a substantial share of foreign tourists who wish to participate in outdoor activities while in Sweden (e.g., tourists from Germany, France, Great Britain, the USA as well as neighboring Nordic countries) (Visit Sweden, 2023). As such, destinations around Sweden want to further increase their share of tourists interested in outdoor activities. Previous research suggests that foreign tourists are more critical of the presence of wind power installations in natural areas than are Swedish domestic tourists (Wall-Reinius et al., 2015). Yet, much of the international literature does not see a connection between tourism revenue loss and the presence of wind power infrastructure at tourist destinations (e.g., de Sousa & Kastenholz, 2015; Fortin et al., 2017; Smith et al., 2018; Westberg et al., 2013).

1.1 Project aim

Seeing that many factors influence a tourist experience, an integrated approach is needed to assess tourist experiential value of nature areas where there is wind power infrastructure. The project "Wind power establishments and experience value in nature areas" aimed to add such knowledge. The main objective of the project was to develop a survey tool that can be used to provide an overall perspective on the perceived value of the tourism experience at destinations where there is wind power infrastructure visible in nature. The survey-tool developed through the project assesses emotional, epistemic, spiritual and sustainability aspects of experiential value. Researchers at ETOUR, Mid Sweden University's tourism research center conducted the project over two and a half years (June 2021–December 2023).

This report gives an overview of the phases of the project (i.e., literature review, qualitative research, and quantitative research) and its results (i.e., analysis of survey data). The survey is included in the appendix. The survey was developed based on data from the different phases of the project, and on historical, socio-cultural, and technological knowledge about wind power and its infrastructure, and about sustainability specifically related to pro-environmental and pro-social consumption. To increase the generalizability of its design, the survey was assessed using a panel. In the conclusion, we sum up the results of the survey and reflect on the applicability of its measurement instruments.

1.2 Wind power infrastructure in Sweden

Sweden has developed and enacted land-use plans and climate policies to cease depending on carbon-emitting energy sources (SRK, 2016). In 2023, wind power accounted for around 21 percent of total electricity production in Sweden. The country has 5,497 wind turbines which are unevenly distributed between the regions and produce 34.1 TWh of electricity (Swedish Energy Agency, 2023). Sweden is highly dependent on hydro and nuclear power for its electricity supply and even if these forms of electricity production affect the environment, they aim to contribute to the national goal of producing fossil-free electricity. Swedish wind power production has increased significantly since the early 2000s, a factor that Ek et al. (2013) attribute the technology development and national adoption of strong policy goals that made wind power development economically viable throughout the country.

Numbers of wind turbines and their energy capacity varies across Swedish municipalities (Ek et al., 2013). Most land-based wind turbines are found in the municipalities in central Norrland, which have large sparsely populated areas. Throughout the country, wind power provides green and cheap energy in compliance with emission reduction standards. Though the number of turbines has increased over the past decades, opposition to their construction has also strengthened (Mels & Aronsson, 2010; Waldo, 2012). The Swedish Wind Energy Association (SWEA, 2023) states that although the renewable energy sector enthusiastically backs new projects, there is little support from Swedish municipalities. In fact, Swedish municipalities have considerable decision-making power concerning land-use (Ek et al., 2015). Discontent with the growth of wind power shows in the fact that, in 2022, Swedish municipalities stopped 73 % of wind turbine construction plans on their territory following local opposition (SWEA, 2023).

1.3 The tourism system

Tourism is a social, cultural, and economic phenomenon which entails the movement of people to countries or places to spend time away from home for personal or business purposes. These people are visitors, and tourism has to do with their activities, including their expenditures (UNWTO, 2021). The Swedish Agency for Economic and Regional Growth (2016) defines visitors as persons travelling to a destination outside their usual environment for a period not exceeding one year and for the purposes of business, leisure, or other personal reasons. A visitor is then a tourist if his or her trip includes an overnight stay, otherwise the visitor is an excursionist. In our study, we identified tourists according to the Swedish Agency for Economic and Regional Growth definition of a tourist (i.e., a visitor staying overnight).

Most definitions of tourism include a distance travelled from a usual environment (usually 100 km). However, it is widely acknowledged that residents also contribute to the local tourist economy by partaking in leisure activities and visitor experiences. In fact, the availability of leisure activities for tourists easily accessible to residents often motivates people to live and work in certain places. The benefits that the local tourist economy brings to residents is crucial to the sustainability of destinations and will be acknowledged in this report.

The tourism system is composed of regions that generate tourists and of regions that welcome tourists. The regions that welcome tourists are known as destinations (Leiper, 1979). A destination can be a resort, town, nature area, national park, or region within a country, or the whole country itself. It can even be a large area of the globe if a packaged tour or travel itinerary includes visits to different countries. Broadly, there are two kinds of destinations; those that are mostly constructed and those that are mostly natural (Holloway & Humphreys, 2020). Destination management provides access, attractions, and amenities to visitors at all types of destinations. There are destinations that feature more purpose-built attractions than others (e.g., museums, art galleries, amusement parks, aquariums, shopping centers), which increases their attractivity for visitors. The success of a destination in attracting visitors depends on the quality of these three essential benefits (i.e., access, attractions, and amenities). Destinations that are mostly natural feature landscape attractions such as forests, lakes, canyons and caves, and waterfalls. In Sweden, tourism to these types of destinations includes partaking in outdoor activities such as kayaking, hiking, sport fishing, cross-country skiing, and visiting wildlife reserves and national parks (Fredman & Margaryan, 2014). Destinations that are mostly natural are also popular for rural tourism, which includes visiting lakes and mountains, but also the countryside and partaking in activities such as farm holidays, visiting gardens, and staying at villages or rural retreats (Lane & Kastenholz, 2015).

1.4 Perceived value of tourism experience

To understand the value that tourists derive from their holidays and travel experiences, it is essential to first describe the tourist product and its complex, heterogeneous, and intangible character. The tourism product is mostly a collection of services, rather than a tangible good that prospective buyers can inspect before the purchase. It is the combination of accommodation, food and beverage, transportation, entertainment, and other goods and services that tourists purchase and use throughout a tourist trip. Importantly, the tourist product is intangible and relies on creating memorable experiences (Hosany et al., 2022). To reiterate a cliché, selling holidays is like selling dreams. When tourists travel, they in fact buy the temporary use of an unusual environment, incorporating what can be for them novel experiences of geographic features, culture and heritage, and other intangible benefits, such as atmosphere and hospitality (Holloway & Humphreys, 2020). Moreover, planning a holiday somewhere outside of the home environment and then remembering it upon return can be just as important to the tourist experience as being on holiday (Kim et al., 2012).

The tourist experience is thus a set of activities in which tourists engage to create their own travel experiences so that these satisfy a wide range of personal needs, such as pleasure and a search for meaning (Hosany et al., 2022). Overall, tourists seek authentic, rewarding, meaningful, multisensory, and transformative experiences when visiting places (Buzova et al., 2020; Chirakranont & Sakdiyakorn, 2022; Kirillova, 2017). Specifically, research on tourism experience in nature areas outlines a wide range of experiential benefits from participation in outdoor activities, including but not limited to physical and mental health, emotional well-being,

relaxation and mindfulness, resonance with nature, acquiring new knowledge and skills, the joy of being with family and friends, socialization, and feeling a sense of belonging, prestige, self-expression, and self-identity construction (Pan & Ryan, 2007; Skår et al., 2008; Chekalina et al., 2018; Pomfret et al., 2023).

Designing and providing memorable experiences to visitors is essential to the tourism industry and destination development (Kim & So, 2022; Tussyadiah, 2014). However, the heterogeneity and intangibility of the tourist product means that its different components (e.g., cleanliness of hotel room, delays in transportation, weather forecast, hospitality of residents) may vary in standards of quality and may change during the tourist trip. The tourist experience of a place or holiday is thus highly dependable on factors that are outside of the control of single stakeholders.

The idea that value in tourism experiences is co-created has gained prominence in tourism studies since the early 2000s. Value co-creation implies that service providers create opportunities for consumers to produce their own unique value from their consumption choices. (Vargo and Lusch, 2004). Because the experience value of a destination is co-created, it is highly personal; no two persons will experience a place or holiday exactly in the same way, and that is because people have different personalities, previous experiences, perceptions, and motivations guiding their actions. All this makes experiential value a complex concept to research and there is a need to further develop tools that enables its evaluation (Zeithaml et al., 2020; Gallarza & Saura, 2020). In consumer behavior, experiential value refers to customer perceptions of products or services through direct use or indirect observation. In this regard, the tourist experience is a bundle of multiple services and products that are packaged together during a holiday to provide tourists with memorable experiences. Beyond the services and products packaged for them, tourists derive hedonic value from their holidays by enjoying themselves away from home, social value by spending time with friends and relatives, and epistemic value by acquiring new knowledge during their travels (Williams & Soutar, 2009). The tourist product also has functional value (i.e., the quality and performance of the product or service), and tourists will seek to get value for their money (Williams & Soutar, 2009).

With the growing importance of sustainable consumption, there are now more dimensions of experiential value recognized as bringing positive value to the tourist experience. Sustainable consumption is the use of products and services in ways that minimize impacts on the environment to meet human needs in the present and future. Research relates experiential value associated with sustainable consumption to altruistic value (i.e., that others benefit from one's ethical consumption), ecological value (i.e., the meaning that consumers place on the impact that their consumption has on the natural environment), and societal value (i.e., the benefits that the tourist experience creates for the host community) (Holbrook, 2006; Butler et al., 2016; Zainuddin & Gordon, 2020). Moreover, tourism consumption is recognized to have transformative value because it can provoke a shift of consciousness in tourists who undergo memorable experiences (Gallarza & Saura, 2020).

1.5 Research design: mixed method approach

An exploratory sequential mixed-method research design was used to develop and test the survey tool. This method involved several interrelated stages, which were designed to work together in a comprehensive, cohesive, and pragmatic way (Creswell, 2014). Specifically, the survey-tool was developed through a sequence of three distinct, yet interconnected, stages of research: 1) a literature review, 2) qualitative research, and 3) quantitative research. Additionally, alongside the three research stages, strategic meetings with relevant stakeholders and diverse communication activities supported the entire project. The results obtained at each stage informed the design, implementation, and refinement of subsequent stages (see Figure 1).

The preparatory work for the project (June 2021 – April 2022) included the following activities:

- identifying and initiating contact with collaboration partners and relevant stakeholders, assessing the knowledge needs of external stakeholders regarding tourists' perception of wind power and its impact on tourist experience in nature areas, and discussing interim results and necessary adjustments to the project research design,
- a pilot study on Ånge municipality (June–December 2021) and a study visit to Höga Kusten tourism destination (April 2022) in Västernorrland County,
- an overview of previous research on wind power and tourism industry (see Chapter 2),
- communication efforts included presenting the project via the Vindval program meetings and newsletters, information about the project via diverse web-channels and mass-media, and presentation of the project internationally at the Nordic Symposium on Tourism and Hospitality Research in Iceland (September 2021).

The Vindval program supported the project by establishing a group of what they called "followers" to work as our reference group. The group of followers consisted of stakeholders responsible for regional development, wind power establishment, and nature protection. Further identification of relevant stakeholders occurred with the support of project followers, as well as during the pilot study. Additionally, the project's communication efforts raised awareness among relevant stakeholders across Sweden, initiating contact with the project team and providing additional platforms for strategic meetings. Interaction with stakeholders was pivotal for project implementation, offering the project team a deeper understanding of the complexity of stakeholder configurations. This included recognizing how diverse stakeholders work with tourism development in nature areas and understanding knowledge needs among stakeholders regarding the impact of wind power on tourism.

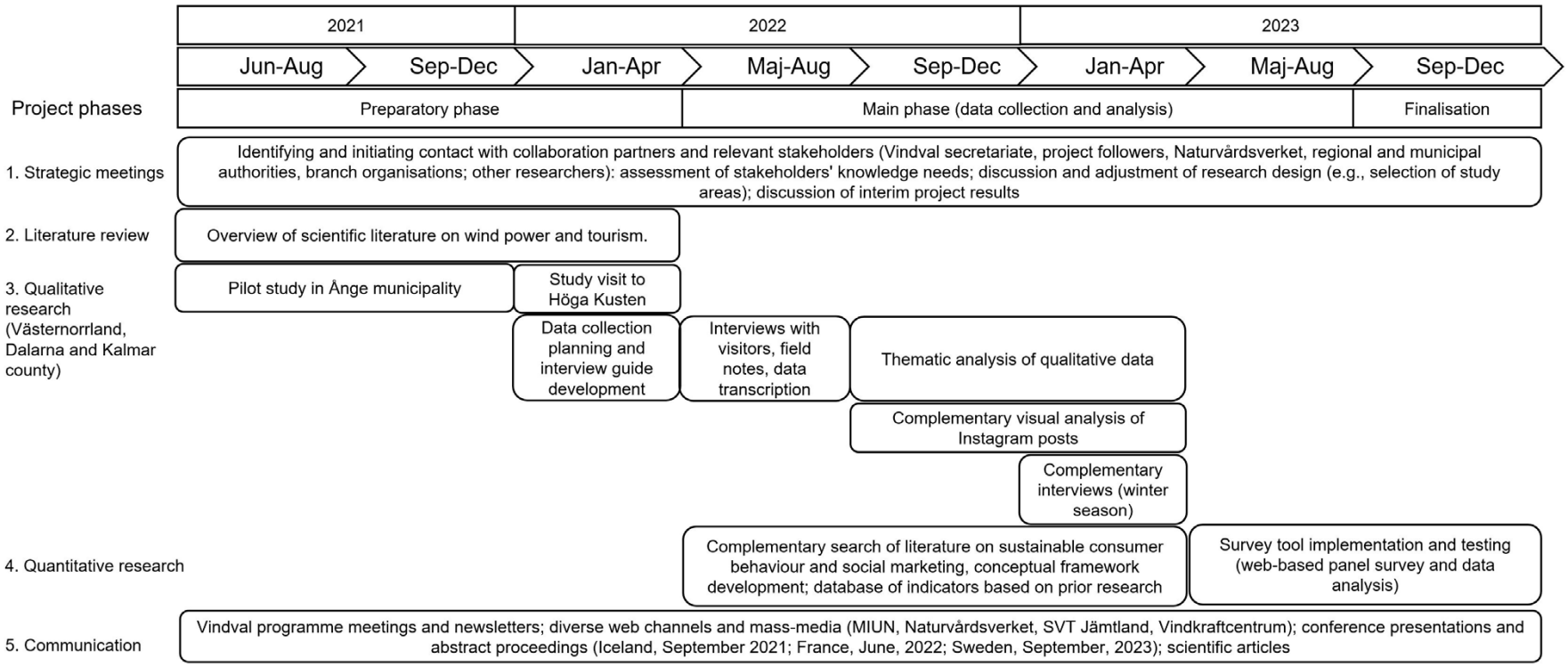


Figure 1. The overview of project stag.

The outcomes of the preparatory phase are the literature review and the research design for the qualitative stage. The literature review in Chapter 2 addresses factors influencing perceptions and attitudes toward wind power infrastructure in recreational landscapes. Chapter 3 presents the findings of the qualitative research. Interviews with visitors in Västernorrland, Dalarna, and Kalmar counties were primarily conducted during summer 2022. The qualitative research phase extended from September 2022 to April 2023, and involved the thematic analysis of qualitative data, visual analysis of Instagram posts, and supplementary interviews in Dalarna in winter. Sections 3.1.1 and 3.2.1 provide more detailed description of the qualitative research.

The findings from the literature review and qualitative research informed the quantitative research of the project (May 2022 – October 2023). Recognizing the need to integrate theory on sustainable consumer behavior in the conceptual framework, the project team conducted an additional review of the scientific literature. By integrating insights from different fields of literature and the results from the qualitative research, the project team was able to develop the conceptual framework that then guided the development of the survey tool (see section 4.1.).

Based on the additional literature review, we developed a database of indicators that could potentially be relevant for the development of the survey tool (e.g., the indicators previously used to measure emotional, epistemic and spiritual value of tourism experience in nature areas as well as altruistic and ethical value of tourism experience, attitude towards pro-environmental consumption and anticipated emotions of pride and guilt associated with a decision to engage or not engage in pro-environmental consumption. Next, the selection of indicators was informed by the literature and our qualitative research results, and we adapted them to the context of tourists' encounters with wind power infrastructure in nature areas.

The findings from earlier stages of the project enabled us to identify gaps in the measurement of relevant aspects such as altruistic and ethical value of tourism experience. Therefore, we found it necessary to also propose our own indicators for the survey tool. Specifically, based on the results of our qualitative study, we developed a set of indicators to measure opinions on wind power among potential tourists to nature areas. Additionally, findings from our visual analysis of Instagram posts guided the development of a short film to include in the survey to illustrate a hiking trip in nature areas with wind power infrastructure. As part of our strategic collaboration with stakeholders, we asked relevant external actors to assess the relevance of the descriptions and illustrations of the wind power encounters featured in the short film. Sections 4.2 on survey design and 4.3 on data collection provide a more detailed description of the methodological approach behind the quantitative study. Section 4.4 present the results derived from testing the survey tool.

In the conclusion (Chapter 5), we present a summary of project findings, address the study's limitations and discuss implications of adapting the survey tool in the real-life context of destinations where tourists might encounter wind power infrastructure in nature areas.

2. Overview of the literature

An essential part of the project consisted of reviewing scientific publications on tourism and wind power. We identified three general areas of research on this topic: 1) tourist perceptions, attitudes, and experiences, 2) Other tourism stakeholders' perception, attitudes, and experiences, and 3) tourism based on experiencing wind power installations (i.e., energy tourism). Overall, our review of the literature shows that physical changes to the landscape due to the development of wind power infrastructure impact tourist perceptions, attitudes, and experiences of nature and recreational landscapes. These impacts on tourists are due to specific factors. We first outline these factors and give an overview of research establishing what influences them. Secondly, we outline factors influencing perceptions, attitudes, and experiences of other tourism stakeholders (i.e., residents and entrepreneurs). Lastly, we give an overview of the literature on the supply-side of energy tourism.

2.1 Tourist perceptions and attitudes

There is a limited number of studies dealing with the specific issue of tourist perceptions, attitudes, and experiences of wind turbines in nature and recreational landscapes. Our search of the scientific literature led to the identification of 39 scientific articles in the field of tourism studies and other academic disciplines (i.e., energy policy and environmental planning, landscape and natural resource management, and environmental economics) that deal with this subject matter. Overall, research shows that wind power infrastructure does not usually deter tourists to visit destinations. In fact, we have not found any studies addressing tourism, outdoor recreation and wind power that convincingly shows that destinations lose tourism revenue or visitor numbers specifically due to the presence of wind power infrastructure on their territory. Most alarm over the impact of wind turbines on the tourist experience comes from the supply-side of the tourism system. However, there are influencing factors behind tourist perceptions, attitudes, and experiences of wind turbines that are worth exploring.

From the literature, it is evident that concern about the impacts of renewable energy infrastructure, such as wind parks and turbines, are particularly relevant to rural destinations benefiting from the quality and aesthetic experiences of a natural landscape (Rizzo, 2017). In this regard, opposition to wind power development seems to relate to the perceived negative impacts of its infrastructure on recreational and aesthetic landscape services, such as outdoor recreation and nature-based tourism (Broekel & Alfken, 2015; Firestone et al., 2009, Ólafsdóttir & Sæþorsdottir, 2019; Sæþorsdottir & Ólafsdóttir, 2020). The experiential value that individuals draw from recreational landscapes relate to hedonic values of relaxation and well-being, for instance (Margaryan et al., 2022). Some studies demonstrate that tourists have a negative perception of wind power infrastructure in natural landscapes. For example, researching tourist attitudes towards wind turbines in the Southern Highlands of

Iceland, Sæþorsdottir et al. (2018) found that a third of tourist would be less likely to revisit the area if wind farms were built in it, while two thirds of tourists think the presence of wind turbines would reduce the attractiveness of the landscape in the area. Sæþorsdottir & Ólafsdóttir (2020) and Tverijonaite et al. (2022) also write that wind power infrastructure is generally perceived as less suited to be built in wilderness areas because it would decrease the attractiveness of the landscape. Renewable energy development often requires the availability of large tracts of sparsely populated land for the deployment of its infrastructure. Rural and nature areas are as such ideal spaces to develop wind power infrastructure. However, it means that this infrastructure will be developed in valuable tourist regions and compete for scare natural resources with tourism stakeholders (Sæþorsdottir, 2012; Sæþorsdottir & Saarinen, 2015).

Importantly, there is a distinction between the perceived negative impacts of wind turbines on tourism activities and the actual negative impacts of wind turbines on tourism activities. On this matter, Mordue et al. (2020) argue that opposition to wind power infrastructure for the sake of the development of a tourism economy stems from the discourses and practices of local stakeholder groups who seek to resist undesired development in landscapes they wish to preserve. Similarly, Rudolph (2014) highlights that despite surveys that depict no correlation between wind turbine installations and declines in visitation and tourism revenue, residents continue to feel concerned about the impact of turbines on the local tourism industry. Our review of the literature indicates that when tourism suppliers are included in research on perceptions of wind power, it is mostly their opinion about what tourists seek at the destination that is evaluated, not actual lost revenue or decreased visitation due to the nearby development of wind power installations (Mordue et al., 2020; Ólafsdóttir & Sæþorsdottir, 2019; Rudolph, 2014). For instance, Ólafsdóttir and Sæþorsdottir (2019) and Sæþorsdottir et al., (2021) point out that Icelandic tourism providers believe that their customers are interested in experiencing unspoiled nature and landscape of pristine appearance, which leads them to perceive that the construction of wind power installations along scenic roads would be detrimental to the visitor experience. Ólafsdóttir and Sæþorsdottir (2019) mention that Icelandic tourism providers worry that light pollution caused by wind turbines might negatively impact northern light tourism experiences. However, only asking tourists about their perceptions of wind turbines does not factor in tourists' intention to revisit or recommend the destination, nor their spending at the destination, including spending on providers of nature experiences. In the Swedish context, Fredman and Margaryan (2014) found that most nature-based tourism entrepreneurs are neutral towards the effect of wind power on their activities (i.e., 53 % of respondents).

Though negative perceptions and experiences of wind power installation have been identified in the literature, most research shows that, in many instances, wind turbines have a rather small, if any, impact on visitor experience, destination choice or intention to re-visit (Brudermann, 2019: Fortin et al., 2017; de Sousa & Kastenholz, 2015; Frantál & Kunc, 2011; Nash et al., 2007; Rudolph, 2014; Silva & Delicado, 2017; Smith et al., 2018; Warren & Birnie, 2009; Westberg et al., 2013). Even if visitors find the presence of wind turbines in nature areas visually disturbing, it does not mean that they will avoid a place. There is yet no clear evidence of negative economic impact on the tourism economy due to wind power infrastructure at a destination. Researchers argue that wind turbines and wind parks can even attract visitors, either to see the infrastructure itself or to visit interpretation centers (Liu et al., 2020; 2019).

In these cases, wind power infrastructure can benefit tourism development by providing an additional attraction to the destination (see section 2.3 on the supply of energy tourism).

Overall, there are international studies that demonstrate that the presence of wind power infrastructure does not overly impact the tourist experience of a nature area. For example, in their survey research amongst domestic tourists visiting nature areas in the Czech Republic, Frantál and Kunc (2011) found that the presence of wind turbines did not have a significant negative impact on tourist perceptions of the landscape. In fact, 68 % of study-participants disagree that wind turbines significantly affect the landscape character, while 27 % agree that they do. Fortin et al. (2017) established through quantitative research that the presence of turbines has negligible impact on the tourist experience and intention to re-visit. 84 % disagreed that they would not visit a location if they knew there were wind turbines in the location. In contrast, only 6 % agreed. Their study of tourist perception of wind turbines in the landscape of a popular rural destination in Eastern Canada demonstrates that tourists can still chose and intend to re-visit a destination primarily for its landscape and for nature observation even though there are wind turbines spread across it. Their study even shows that tourists can deem images that include wind turbines as representative of the destination's character. Ultimately, tourists can consider the presence of wind turbine as components of the landscape (Fortin et al., 2017; Kalashnikova, 2016).

2.1.1 Specific influencing factors

From studies evaluating the relationship between wind power infrastructure and the visitor experience, we have identified four specific factors behind tourist opposition, acceptance and even appreciation of wind turbines in destinations. The first factor we highlight is 1) the visual impact of wind turbines on tourist perceptions and experiences. This factor has the most apparent impact, but, on its own, does not provide satisfactory insight into the relationship between tourism and the experience of wind power development. Another factor relates to the supply-side of tourism (i.e., the destination), and is: 2) the characteristics of the destination, such as the presence of other anthropogenic disturbances in the landscape. Two more factors relate specifically to the demand-side of tourism (i.e., the tourist), which are: 3) the characteristics of the tourist's place of origin and familiarity with the destination, and 4) the tourist's value judgment, such as pro-environmental attitude, altruistic values, and concerns for future benefits.

VISUAL IMPACT AND AESTHETIC ATTRACTIVENESS

A common perception of wind turbines is that they constitute visual pollution that lowers the visual aesthetic attractiveness of landscapes (Wolsink, 2007). Landscapes consist of different natural attributes that give them distinct aesthetic appeal and recreational value, such as coastlines, forests, small towns, and mountains (van Zanten et al., 2016). Landscapes are important to tourism experiences since tourism is a highly visual experience that depends on the spatial aesthetics of various signs and symbols (Urry, 1990). This type of negative visual impact of wind turbines is particularly salient for the evaluation of tourist experiences of nature areas. Studies have revealed that there is a common perception that wind power infrastructure decreases or could decrease the scenic beauty of a natural landscape (Brownlee et al.,

2015; Devine-Wright, 2010; Graham et al., 2009; Sæþorsdottir & Ólafsdóttir, 2020). Wind turbines reduce the attractiveness of natural landscapes by emitting light and noise pollution, indirectly or directly causing deforestation and soil erosion, degrading ecosystems, and impacting wildlife (Dai et al., 2015; Haggett, 2012; Lima et al., 2013; Leug & Yang, 2012).

Not all studies on the visual impact of wind turbines on the tourist experience show negative results. For instance, in their study on wind farms and the rural tourism experience in a Portuguese historic village, de Sousa and Kastenholz (2015) found that wind turbines could have a positive impact on the visual aesthetics of the natural landscape amongst tourists, mainly when it came to the experience of domestic visitors. Some of the participants in de Sousa and Kastenholz's (2015) study stated that the wind turbines in fact embellished the landscape they were visiting and were interesting to look at, especially when spinning. There were even some participants who could see a connection between the traditional windmills of the recent past and the new technology of wind power energy. Kalashnikova (2016) found that tourists prefer experiencing smaller wind farms located far from places of historical significance. Wind turbines placed in areas already impacted by human activity even improved the attractiveness of the landscape and create an interesting "futuristic landscape" (Kalashnikova, 2014).

The visual impact of wind turbines on the visitor experience depends on physical factors related to the wind turbines themselves. These are aspects such as their location, quantity, height, colour, lighting, and materiality, which can have a particularly strong impact in areas of rich natural and cultural heritage (Cassin & Zolin, 2009). Although these physical factors related to aesthetic perceptions of wind turbines are important to consider in planning the development of wind power infrastructure, people's attitudes towards wind turbines in natural landscapes and wind energy in general are also highly influenced by personal worldviews. Attitudes towards landscapes aesthetics are very subjective and diverse. When it comes to wind energy, aesthetic perceptions of its infrastructure can relate to unquantifiable factors such as energy security and global sustainability (Bidwell, 2023; 2017; Westberg et al., 2015; Wolsink, 2007; Warren & Birnie, 2009). Value judgments of wind turbines related to pro-environmental attitudes and perceived benefits are discussed later in this section.

Researchers have studied attitudes towards offshore wind turbines to understand their impact on perceptions of marine landscapes and on coastal recreative activities, like boating and angling. When it comes to offshore wind turbines, publics are mostly concerned about potential negative impacts on coastal recreational activities (Firestone et al., 2009; Smythe et al., 2020). Research shows that the presence of offshore wind turbines seems to be viewed more negatively by anglers and recreational boaters than by tourists and recreationists who do not use a coastal area for recreational activities (Ladenburg & Dubgaard, 2009). Residents consider more developed areas more acceptable sites for offshore wind farm development, believing it minimizes negative impacts on tourism (Nordman et al., 2015). Still, Smythe et al. (2020) say that residents can see future tourism benefits of having offshore wind turbines if caution is used to contain the development of the infrastructure and that it can retain its attraction over time. Most stakeholder groups perceive locating wind farms offshore as more desirable than locating them on land (Haggett, 2011; Ladenburg, 2010; Ladenburg & Möller, 2011). The distance of wind turbines from the shoreline makes a difference for the onlooker; studies have found that the furthest

away the turbines are from the shoreline, the less visually disturbing tourists find them to be (Bishop & Miller, 2007; Krueger et al., 2011; Ladenburg & Dubgaard, 2009; 2007).

Whilst the literature often identifies negative perceptions of the visual impacts of offshore wind turbines on tourism (Machado, 2023; Teisl et al., 2018), the visual impact from offshore wind farms can at times be positive for tourism. Through the results of an experimental design, Westberg et al. (2015; 2013) propose that, for certain segments of tourists, wind farms are appreciated as signs of sustainability when they are located more than 8 kilometres away from the shorelines. This is especially the case if the tourists are interested in engaging in cultural, historical, and gastronomic activities at the destination. In general, this segment of tourist experiences smaller negative impact from offshore wind turbines than the tourists who spend most time on the beach while at the destination. Matters of perception have been investigated from different angles. A study conducted in Denmark shows that people who are used to viewing offshore wind farms located far from the shoreline have a significantly more positive perception of the visual impacts of offshore wind farms than do people who are used to viewing wind farms located closer to the shoreline (Ladenburg, 2009). Similarly, for people who cannot see an onshore wind turbine from their permanent or summer residence, there are no significant effects on attitude towards local wind power development (Ladenburg et al., 2013).

PHYSICAL CHARACTERISTICS AND ANTHROPOGENIC DISTURBANCES

Researchers have established that the physical characteristics of a place influence stakeholder attitudes towards the presence of wind turbines in the landscape (Brownlee et al., 2015; Devine-Wright, 2011). This factor is mostly related to the symbolic contradiction between nature and industry where technological infrastructure is not seen to fit in landscapes of natural value (Brittan, 2001; Woods, 2003). When wind turbines are placed in natural landscapes, opposition can stem from the fact that visitors interpret the landscape as being valuable for its natural character, and thus wish to see it remain outside of the realm of industrial development.

Wind turbines are not the only industrial threat to the naturalness of landscapes. In some contexts, wind turbines might not even be the most intrusive anthropogenic threat to the natural aesthetics of a landscape. Man-made infrastructure like mines and open quarries, dikes, grid lines and pylons, power lines, and hydro-power damns can also have a negative visual impact on a natural landscape for tourists (Frantál & Kunc, 2011; Hamilton, 2007; Riddington et al., 2010). Riddington et al. (2010) argue that such man-made infrastructure has a comparable, if not even stronger, influence on accommodation prices than wind power infrastructure does at most destinations. In the Czech Republic, Frantál and Kunc (2011) found that the anthropogenic disturbances in the landscape that would dissuade domestic tourists the most to re-visit an area are: industrial buildings, mines and abandoned mines, mobile operator masts, and electricity poles and wires. All these anthropogenic objects scored more negatively than wind turbines did amongst the domestic tourists participating in Frantál and Kunc's (2011) survey. De Sousa and Kastenholz (2015) report that while wind turbines might have a negative visual impact on the tourist experience, visitors can appreciate that it is not something much worse, like a refinery, that was inserted in the landscape for regional development. While wind

power technologies have a local impact on land-use and ecosystems, they are not as extractive and polluting as traditional industries are. Perceptions that wind turbines in rural landscapes signify ecological modernization of rural economies explains the positive attitudes of tourists towards them (de Sousa and Kastenholz, 2015).

TOURIST POINTS OF ORIGIN AND FAMILIARITY WITH DESTINATION

There are individual factors amongst tourists that influence their perceptions and experiences of wind turbines in nature areas. The characteristics of the tourist's place of origin and the tourist's familiarity with the destination are such factors. For instance, Frantál and Kunc (2011) found that tourists who come from areas affected by industrial development and decay are more likely to appreciate the presence of wind turbines in rural landscapes because the turbines represent a clean source of energy and have visual aesthetic appeal. The physical and environmental character of the tourist point of origin is thus also a significant factor determining the tourist perception and experience of wind turbines in a landscape.

The familiarity with a destination is also an important individual factor determining the tourist's perception and experience of wind turbines in a landscape. Fortin et al. (2017) found that destination loyalty prevails amongst tourists who have been satisfied with a destination and its natural landscapes in the past, regardless of the added presence of wind turbines in some parts of its landscapes. Westberg at al. (2015; 2013) suggest that tourists who are loyal to a destination experience little or no visual nuisance related to the presence of offshore wind turbines. The results of the experimental study by Westberg at al. (2015; 2013) demonstrate that loyal tourists consider that renewable energy at a coastal resort area could more than outweigh the visual presence of wind farms at any distance from the shoreline. The younger and the older members of this loyal segment seemed to particularly appreciate the green policy that wind turbines symbolize.

ENVIRONMENTAL ATTITUDES, PERSONAL VALUES, AND PERCEIVED BENEFITS

Researchers have established that tourists often perceive the visual effects of renewable energy infrastructure in relation to value judgement, rather than aesthetic perceptions (Bidwell, 2023; 2017; Oh et al., 2023; Westberg et al., 2015). Wind power, as a renewable source of energy, is a form of green energy. For many, its development can help decrease dependence on electricity from power plants that generate polluting emissions. Unlike electricity derived from fossil fuels, wind power is not associated with negative externalities, such as acid rain or reduced visibility from smog. While there are concerns that wind power infrastructure impacts landscape, noise levels and wildlife, the public generally views wind power development as an effort to avert climate change and air pollution (Warren & Birnie, 2009; Wolsink, 2007).

Research shows that tourists can appreciate the presence of wind turbines for the benefits they bring as a green source of energy (Bidwell, 2023; 2017; Brownlee et al., 2015; Carr-Harris & Lang, 2019; Oh et al., 2023; de Sousa & Kastenholz, 2015; Westberg et al., 2015; 2013). In their study on wind farms and the rural tourism experience, de Sousa and Kastenholz (2015) found that most domestic and international tourists perceive wind energy positively, associating its development to words like 'a good thing', 'clean', friendly', 'not harmful to the environment' and

'ecological'. Even tourists who did not find wind turbines in the rural landscape to be an appealing sight appreciated that it was beneficial to have them there (de Sousa & Kastenholz, 2015). Tourists are generally aware of sustainability issues and are increasingly knowledgeable about measures to conserve energy and reduce waste (Han, 2021). For instance, in Australia, Dalton et al. (2008) identified a desire amongst tourists for environmentally friendly accommodation and renewable energy supply. Certain groups in society have a predisposition for pro-environmental orientations, which makes them particularly prone to eco-friendly consumption and behaviour, even as they engage in tourism activities. Pro-environmental orientation can influence one's support or opposition to the development of wind power establishments. Outdoor recreationists and tourists to nature areas are generally predisposed to support pro-environmental initiatives that seek to reduce ecosystem degradation because they value wildlife, plants, and animals (Larson et al., 2011).

Overall, there are studies identifying a positive correlation between tourist acceptance of wind power installations at the destination and tourist pro-environmental values and beliefs. For instance, after finding more support for the development of offshore wind turbines than opposition amongst marine outdoor recreationists in two communities in Massachusetts, Brownlee et al. (2015) hypothesis that the high biospheric values of the members of this group leads them to support the initiative because it produces clean energy and thus help mitigate the negative effects of climate change. Moreover, with their experimental study, Westberg et al. (2015; 2013) propose that the willingness to pay for accommodation facing a wind farm at a destination may be attributed to tourist environmental consciousness. The researchers found that experienced visual disamenity costs decrease as wind turbines are situated further from the coast. However, disamenity costs associated with wind turbines at 5, 8 or 12 km may for the average tourist be outweighed by the presence of a coherent environmental policy and wind farm associated recreational activities at the destination. Similarly, Carr-Harris & Lang (2019) found in the American context that offshore wind farms can act as an attractive feature of a location, rather than a deterrent. Ultimately, certain segments of tourists are ready to pay extra money for accommodation if they know the accommodation is located at an environmentally friendly resort community.

The values and beliefs influencing the acceptance of wind power installations are complex. Bidwell (2017) developed a framework to identify how tourist attitudes towards offshore wind power development are influenced by values, beliefs, and personal experiences with a wind power project. With this framework, Bidwell (2017) established that altruistic values (i.e., concern for others) amongst tourists predict higher support and more optimism towards the impacts of a wind power project. The other values included in the framework are egoism (i.e., concern for the self and immediate others), biospherism (i.e., concern for non-human species) and traditionalism (i.e., preference for the established social order). Tourists with traditional values displayed greater pessimism and less support towards the wind power project. Later, studying the same case, Bidwell (2023) showed that the attitudes of tourists with altruistic beliefs increased in positivity from the pre-installation of wind power project infrastructure to when the project was finally completed. Project visibility is thus a predictor of positive attitude towards a project. Similarly, Tverijonaite et al. (2022) found that the impacts of proposed energy projects are usually perceived more negatively than are existing energy projects.

Perceived benefits of wind power are also a key factor to the acceptance of its infrastructure development (Brudermann et al., 2019). Bidwell (2023) recognized that tourists who are more optimistic about the positive effects of wind power development are more likely to accept the presence of wind turbines in marine landscapes. The same applies to destination residents. Amongst residents, there is often a desire to rely on alternative energy sources, rather than fossil fuels, and to decrease dependence on foreign sources of energy (Kempton et al., 2005). In Iceland, Sæþorsdottir and Ólafsdóttir (2020) found that residents were more tolerant towards renewable energy development than were tourists, though they believed it would reduce the attractiveness of the landscape. De Sousa and Kastenholz (2015) established that residents' positive attitudes towards wind farms often relates to perceived economic benefits. When it comes to visitors, their attitude towards wind farms usually relates to perceived energy benefits. Brownlee et al. (2015) found that support amongst tourists for wind power development close to protected nature areas is related mostly to perceived increase in energy independence. In nature areas significantly developed for tourist consumption, support amongst tourists mostly is related to perceived benefit for future generations. Westberg et al. (2015) propose that concerns over climate change, nuclear energy and the cost-effectiveness of wind power are important determinants influencing the experience of individuals who vacation in proximity to offshore wind farms.

2.2 Other stakeholder perceptions and attitudes

Besides tourism businesses and destination management organizations, tourism stakeholders include rural dwellers, policymakers, community leaders, urban recreationists, second-home owners, and other business entrepreneurs. The experiences of residents are especially relevant to our exploration of tourist perceptions of wind turbines in nature areas because both the development of wind power infrastructure in recreational landscapes and the development of a local tourism economy affect residents (de Sousa & Kastenholz, 2015). The residents of a destination are its tourism workforce and entrepreneurs. As such, it is alarming that Fredman and Margaryan (2014) found that nature-based tourism entrepreneurs in Sweden perceive wind power infrastructure to be the most negative activity affecting their operations, compared to forest roads, second homes and hydroelectric dams, for instance. In Swedish Lapland, the development of wind power infrastructure puts additional pressure on land-use that negatively impacts reindeers and reindeer husbandry (Skarin, et al. 2022; Stoessel et al., 2022). Though not the focus of our study, we deem resident attitudes towards changes to the local landscape important to consider for the purpose of understanding tourist experiences and destination development because these stakeholders are key players influencing the visitor experience as they create, support, and share the social space and infrastructure needed to welcome visitors.

While there are few studies concerning tourist perceptions and experiences of wind turbines in nature areas, many studies look at the perceptions and experiences of rural stakeholders of wind turbines in local landscapes. These studies come mostly from the fields of environmental psychology, planning, energy policy and

rural sociology. Often, researchers study perceptions and attitudes towards wind power infrastructure to establish the factors behind its acceptance or opposition amongst stakeholders with stakes in the local landscape, such as residents. Responses to wind power infrastructure development depend on how stakeholders understand the potential impacts of these development projects on the features of the local landscape and on community resilience and modernization (Goudriaan et al., 2023). Importantly, the expansion of wind power infrastructure in areas already impacted by the externalities of extractive economic activities has cumulative effects on people and place (Skarin et al., 2022). It is thus crucial to consider multiple physical, political, socio-economic, global, and personal factors to understand the acceptance and opposition against local wind power infrastructure development. We give a brief overview of these interrelated influencing factors in this report.

2.2.1 Influencing factors: benefits, ownership, and transparency

While arguments supporting the development of renewable energy infrastructure are plentiful on the global level, its local impact on land-use practices and landscape aesthetics make renewable energy transitions a controversial societal matter. Renewable energy infrastructure has the power to reorganize the use and access to space and local economic activity (Bridge et al., 2013). Researchers recognize that renewable energy projects such as wind parks and wind turbines near small, often rural communities can have significant localized environmental, social, and economic impacts on people and place (Klain et al., 2018; Picchi et al., 2019). The large-scale development of renewable energy installations transforms the character and function of landscapes, and thus impacts economic activities, such as reindeer husbandry and tourism, as well as the health and well-being of those living near these installations (Picchi et al., 2019; Skarin, 2022). Unlike the benefits of relaxation and peace that urban dwellers find in rural landscapes, rural dwellers find value in the landscape through their everyday embeddedness in a place (Johansen et al., 2021; Wall-Reinius et al., 2019). Rural dwellers will understand the impact of technological and industrial developments in a place quite differently from those solely concerned about visual impact on a landscape, such as tourists (Pasqualetti, 2011; 2001). Importantly, the cultural services of rural landscapes (i.e., well-being, recreation, health) are vital elements behind the formation of a sense of belonging to place amongst rural populations (Margaryan et al. 2022).

People's attitude towards the development of wind power infrastructure at specific sites primarily relates to their connections to the areas reserved for development (Devine-Wright, 2011; Ladenburg & Möller, 2011). Opposition usually occurs when there is perceived threat to the quality and character of a place of significant meaning or when there are unacceptable environmental and health risks anticipated to stem from local wind power infrastructure development (Broekel & Alfken, 2015; Bues, 2020; Klain et al., 2018). On this matter, Stokowski et al. (2021) report that rural residents are likely to seek the endurance of their community heritage during periods of transition. Researchers have established that the acceptance amongst rural populations of local wind power development projects usually relates to concerns about community resilience and modernization (Goudriaan et al., 2023; Rygg, 2012; Van Veelen & Hagget, 2017).

Once governments adopt policies supporting renewable energy transition, their successful implementation does not only depend on the financial viability and practical feasibility of renewable energy development projects; they also depend on the general willingness to undergo the necessary development (Ek et al., 2013). In other words, local communities must accept and be ready to plan for the local development of wind power projects for renewable energy transitions to take their course (Ek et al., 2013). In Sweden, municipalities have substantial independence when it comes to land-use planning and development. The views on wind power development of local politicians, officials and community leaders are thus likely to have a significant impact on whether a municipality accepts a wind power development project or not. Moreover, Swedish municipalities in reindeer husbandry areas must consult Sami representatives before decisions are made on matters that may have special significance for the Sami people. Compensations schemes through which wind energy companies invest part of their profit in supporting community infrastructure can also influence local acceptance of wind power development projects. However, most places lack an institutionalised and standardised approach to such community engagement (Aitkens, 2010). Aitkens (2010) argues that a lack of early discussions relating to community benefits can have negative implications for community perceptions of local wind power development.

Overall, international studies have established that the opportunity for community participation in decision-making processes is a key factor influencing attitudes towards wind power development (Aitkens, 2010; Bidwell, 2017; Devine-Wright, 2011; Graham et al., 2009; Krohn & Damborg, 1999). In Sweden, according to the Planning and Building Act, a municipality must inform and consult its residents when planning for the local construction of wind power infrastructure. The Planning and Building Act states that there should be opportunity for consultation available to residents. As such, municipalities can hold consultation meetings during which residents can give their opinions on proposed plans. The municipality can also present the proposal on its website, at seminars, in local newspapers, on local radio, in schools, in libraries, etc. Krohn & Damborg (1999) explain that resident attitude toward wind power development projects highly relate to attitudes towards the developer, the planning authorities, and the planning process. Significant to local acceptance of wind power development are matters of ownership, participation, and transparency in planning (Devine-Wright, 2011; Graham et al., 2009; Haggett, 2011; Wolsink, 2012). In this regard, important determinants include perceived fairness during the development process and the fair distribution of costs and benefits (Aitkens, 2010; Bidwell et al., 2022; Gross, 2007). The question of who owns a wind energy project is a key factor influencing stakeholder attitudes towards local wind power infrastructure development. Small wind farms under local ownership usually garner more support from residents than do large wind farms owned by big corporations, even when these large installations are located further away from local sight and activities (Haggett, 2011; 2008; Gross, 2007; Jobert et al., 2007; Wong, 2009). There is evidence that the clout of extra-local developers can disempower rural residents during decision-making and planning (Kirkegaard et al., 2022). On this matter, Rygg (2012) argues that energy companies and their political proponents are skilled at framing the benefits for communities of renewable energy development to gain local support.

The attitudes of average residents are usually more nuanced than those of local politicians who tend to support strategies for economic growth (Borch, 2018; Stokowski et al, 2021). The scientific literature shows no consistent result regarding the relationship between a deep connection to place and support for wind power infrastructure development. For instance, individuals who feel a strong connection to a place are not always against the development of wind power infrastructure at that very place. On the contrary, studies show that stakeholders with strong attachment to a place are more likely to accept and support wind power installations nearby their communities (Brownlee et al., 2015; Devine-Wright, 2011; Van Veelen & Haggett, 2017; Zerrahn, 2017). This positive relationship is apparent when local populations recognize that a wind energy project will maintain or enhance place character. Some studies have found that initiative-taking adaptations to climate change that disrupt place bonds may be perceived as more acceptable than the conservation of rural landscapes because of fears of having to face climate change (Clarke et al. 2018). Overall, there is no single attitude type that can explain opposition or acceptance of local wind power development, so no generalizations could be made (Bell et al., 2013).

2.3 The supply side of energy tourism

With the proliferation of energy installations around the world, energy tourism (i.e., tourism based on experiencing energy installations) has emerged as a new niche market in tourism. Specifically, the rapid expansion of renewable energy technologies and growing interest in environmentally-friendly lifestyles and green tourism experiences has many critics believe that energy tourism related to sites of renewable energy production will become a strategic tourism niche to develop (Liu et al., 2020). Tourism researchers have investigated the particularities of this form of tourism and have started collecting some information from tourists to understand their perception, attitudes, and experiences of energy tourism. What follows is an overview of this emerging niche market and field of research in tourism.

Energy companies and interest groups have introduced new public relations and corporate branding strategies to influence public opinion positively towards wind power infrastructure (Beer et al., 2018; Frantál & Urbánková, 2017). This includes providing consumer-oriented experiences of wind power installations through, for instance, putting in place a visitor information center, giving guided tours of the installation and providing educational material in connection to a wind park and wind energy. Moreover, there are consumer-oriented products developed around wind power installation that aim to attract niche market segments in adventure tourism. These touristic products include boat tours or sightseeing flights to offshore wind farms and the opportunity to climb and abseil from wind turbines. In this regard, Frantál and Urbánková, (2017) differentiate between expert energy tourism that attracts segments of tourists curious about technology, and experience energy tourism that attracts families and adventure seeking tourists. Liu et al. (2016a) also identified diverse types of energy tourists (i.e., educational tourists, holiday tourist, romantic tourist, and nature tourist), which reflects the broad spectrum of interests amongst visitors to wind power visitor centers.

Beer et al. (2018) identified fifteen facilities that engage visitors in experiences of renewable energy sources and divided them into four categories to reflect the different levels of interactivity they generate between visitors and renewable energy sources:1) no specific visitor engagement exists beyond the provision of a viewing platforms over renewable energy installations, 2) educational trails are designed and information points are provided to enhance the experience of viewing renewable energy installations, 3) interactive visitor centres are located near power plants, and 4) educational centres exist to provide information closely linked to specific renewable energy technologies.

Amongst the educational centres that Beer et al. (2018) identified, there was the Centre for Alternative Technology in Wales that drew in 20,000 visitors in 2015, the Wild Horse Renewable Energy Centre in the state of Washington that drew in 14,859 in 2015 and the Nordic Folkecentre for Renewable Energy in Denmark that drew in 6000 visitors in 2015. As for the visitor centres, Beer et al. (2018) included in their analysis Hellisheiði Geothermal Plant Visitor Centre (Iceland), Whitelee Windfarm Visitor Centre (Scotland), Cruachan Power Station Visitor Centre (Scotland), North Cape Wind Energy Interpretive Centre on Prince Edward Island (Canada), Scrooby Sands Visitor Centre (UK), Sheringham Shoal Wind Farm Visitor Centre (UK), and Raccoon Mountain visitor centre in Tennessee (USA).

There are authors who believe that energy tourism can be a tool to improve people's understanding of the impacts of their energy consumption (de Sousa & Kastenholz, 2015; Frantál & Urbánková, 2017; Van der Horst, 2014). In other words, having people visit wind parks has the educational potential to help them embrace change in their perception of energy production and in their consumption of energy. De Sousa and Kastenholz (2015) speak of promoting the development of a 'green destination' by integrating wind power energy production and visitor-oriented installations in destination planning and development. In that way, the destination can brand itself as physically sustainable and oriented towards social change by educating on sustainability issues.

There are few studies looking into the perceptions and experience of tourists specifically visiting wind power plants and visitor-oriented installations as part of their tourist experiences (Frantál & Urbánková, 2017; Liu & Upchurch, 2020; Liu et al, 2020; 2019; 2016ab). Frantál and Urbánková (2017) surveyed energy tourists in the Czech Republic to learn about their motivations and experiences from visiting energy sites. The tourists included in this study also visited hydropower plants and nuclear power plants, but the findings are relevant to understand who visits energy installations and what motivates them. In general, energy tourists are mostly motivated to visit energy installations to spend time out of usual places, followed by an interest in energy-related issues. When it comes to the motivation factors of tourists who have specifically visited wind farms, 37 % of them answered that their motivation to visit related to their interest in energy-related issues and 63 % of them visited because of their interest in wind power technology. In China, Liu et al. (2019; 2016b) found through a qualitative study that domestic tourists at a large wind power plant showed interests in sustainable energy, exposure to differing local cultures and the science surrounding wind turbine technology as well as sought personal enrichment from sharing their wind farm experiences with family and friends.

de Sousa and Kastenholz (2015) asked their participants in their research on wind power installation in rural Portugal if they thought that wind farms could eventually become tourist attractions. On the one hand, responses indicate that wind farms could be a point of interest and make a destination more attractive, mostly because they would frame it as a modern and eco-friendly destination. Having information panels and even an education center would be a way to turn wind farms into attractions, especially for those tourists interested in technology and environmental conservation. On the other hand, de Sousa and Kastenholz (2015) also found that, for tourists who believe that the presence of wind turbines is so common nowadays around the world, there would be nothing interesting about seeing, and even less about visiting, wind power installations in another country or region. According to these tourists, most people would have already had the occasion to learn about wind power before visiting a destination.

Overall, most research on the topic of energy tourism remains speculative, including speculations from study-participants (i.e., de Sousa & Kastenholz, 2015). Nash et al. (2007) list facilities that tourists could imagine would enhance their experience of wind farms in Scotland. The list includes facilities such as: clear signposting, road access, a gift shop, hands-on-type exhibition, educational facilities and display units with enough information, ample number of places for parking and turning buses, classrooms for organized talks, food and beverage facilities, toilet facilities, company merchandise, and active element to keep children occupied. Ultimately, Glasson et al. (2022) argue that there is limited use of enhancement measures to attract and educate tourists at wind power energy installations, including visitor centres and the provision of boat trips. They also identify under-reported compensation schemes from wind power companies to fund local recreation and tourism facilities.

Table 1. A summary of the factors influencing perceptions and attitudes towards wind power infrastructure in recreational landscapes identified by reviewing literature. (Authors' table)

Physical character of the landscape
Type of recreational activity and the motivations behind practicing the activity
Strength and type of bond with the community and the place features
Character of the energy project being implemented and its development process
Tourist personal attributes and values
Beliefs about renewable energy and the environment

3. Qualitative research

The qualitative research phase of the project consisted of two instances of data collection: 1) conversational interviews with tourists at Swedish destinations where wind turbines are visible in nature and recreational landscapes, and 2) A visual analysis of Instagram pictures of wind turbines posted by German and Swedish users. In this section, we describe the purpose and relevance, methods for data collection, and analysis and results of these two data collections.

3.1 Interviews with tourists

We used conversational qualitative interviews to capture perceptions of landscapes where wind turbines are visible at Swedish destinations. Qualitative research is useful to understand the complicated, contingent, nuanced, and atypical relationships that people form with place (Booth, 2015). Importantly, qualitative interviews provide insights into how individuals or groups of individuals, like tourists, think about their reality and how they construct it through language (Picken, 2018). The interviews served to generate information that could help towards the development of existing models of experiential value. The aspects of value related to sustainable consumption (i.e., altruistic, ecological, and societal value), which the tourism literature on wind power infrastructure identifies as relevant to the tourist experience, can still be expanded upon to contribute to existing models of experiential value. The data from the interviews thus helped us identify themes that could then be used to derive propositions related to the tourist experience of nature and recreational landscapes at destinations where wind turbines are visible in the landscape. Importantly, this enabled us to operationalize experiential values related to sustainable consumption in the survey-instrument.

3.1.1 Collection and analysis of interview data

In this subsection, we describe how we collected our qualitative data, the sites where we collected it and how analysed it. We collected the data from both domestic and international tourists at four Swedish destinations that feature landscapes of high atural value (i.e., the High Coast destination, Ånge municipality, Dalarna County and Kalmar County). The tourists were approached at sites where wind turbines were visible or at sites where they would have most likely passed wind turbines (Figure 2.). We conducted a total of 84 conversational interviews with tourists over the summer months of 2022 and during February 2023. We then analysed the data thematically.

The interview questions were:

1. How would you describe the landscape of the areas you are visiting today as a tourist?
2. What do you find most attractive about the landscape of the areas you are visiting today? What are the features of the natural landscape that you find the most attractive in the areas you are describing?
3. If you could change anything about the landscape of the areas you are describing, what would it be?
4. Have you considered the presence of wind turbines in the landscape of the areas you are describing? What are your thoughts about wind turbines being placed in nature areas?

Figure 2. Locations of interview data collection. Map created by María Antonia Martínez Caldentey (2023) using ArcGIS.

HIGH COAST, VÄSTERNORRLAND COUNTY

We have 28 interviews from the High Coast destination in Västernorrland County. The High Coast is on the shore of the Baltic Sea and is a UNESCO heritage site because of its exceptional geology and unique example of isostatic rebound. The High Coast destination is known for its suspension bridge crossing the river Ångerman. The bridge enhances the view of the landscape of the Ångermanland region, adding to the impressive view of hills and islands. There are viewing points in the area that give visitors the chance to view the coastal landscape featuring the bridge. From these viewing points, two big wind parks are clearly visible in the distance. Their wind turbines are also clearly visible to those driving over the High Coast bridge. 20 of the interviews from the High Coast destination took place from a viewing point overlooking the High Coast bridge located close to the High Coast hotel. Some of these interviews were done on a trail in the vicinity of this viewing point, Lilla Högakustenstigen. The trail provides views over the coastal landscape, but also leads directly to a wind turbine on top of a hill.

Figure 3. Wind turbines are visible from this viewing point next to the High Coast bridge. The area marked in red shows where wind turbines are visible in the landscape to onlookers. (Photo by Anke Peters, 2022).

Skuleskogen National Park provides visitors to the High Coast with the opportunity to hike through rough terrain with rocky peaks. The topography of the park features deep crevasses and caves. The High Coast Trail passes through Skuleskogen National Park, thus connecting the park to popular sites on the coast, such as the viewing points mentioned above. While Skuleskogen lies east of the E4 motorway on the Gulf of Bothnia, Skuleberget is located west of the E4 motorway a few kilometers north of Docksta in Kramfors municipality. The mountain is 295 meters above sea level and falls vertically along the side facing the motorway. At the foot of Skuleberget, there is a 'Naturum' – a special type of visitor center found all over Swedish nature areas, tasked with providing detailed information and educational materials about

the surrounding nature. Naturums follow specific guidelines from the Swedish Nature Protection Agency and are run by the local authorities. Hiking trails and a funicular give to visitors the possibility to reach the summit of Skuleberget, where there are viewing points, picnic areas and a small café open in the summer. Wind turbines are visible from the summit of Skuleberget. Eight interviews took place around Skuleberget.

ÅNGE MUNICIPALITY, VÄSTERNORRLAND COUNTY

Ånge municipality is in the Medelpad region of Västernorrland County. 13 interviews were done at different tourist spots and nature areas in Ånge municipality. A popular tourist spot in the municipality is the location of the geographical middle of Sweden. Known as Flataklocken, it is on top of a hill next to Lake Munkby just outside Torpshammar. Flataklocken is the oldest and most famous geographical center of Sweden. At Flataklocken, there is a restaurant, and a viewing point arranged so that tourists can gaze at the forest landscape from the top of the hill. From there, wind turbines are visible in the far distance. The restaurant provides a makeshift map to help onlookers locate wind farms in the landscape they are viewing. Five of the interviews from Ånge municipality took place at this popular spot.

In Ånge municipality, 3 interviews were conducted at a nature campsite by Myckelmyrberget, the highest mountain in the Medelpad region. On the way to the campsite, wind turbines are clearly visible in the landscape. The mountain is 578 meters above sea level and is located approximately 20km west of the small town of Alby in a nature area. We included Jämtgaveln nature reserve (from where wind turbines are clearly visible at the end of the main hiking trail) as a relevant site for data collection. However, there were no tourists in this nature reserve on the day of data collection. Instead, interviews took place at the Naturum and tourist information center in Erikslund. No wind turbines are visible from the Naturum in Erikslund, but they are visible along the main road leading to it. The interviews from the Naturum (5 of them) focused on the wind turbines tourists would have seen in Ånge municipality on their way to Erikslund.

Figure 4. Wind turbines are visible in Stensjö nature reserve where Myckelmyrberget is located (on the left). The geographical middle of Sweden at Flataclocken is marked for tourists (on the right). (Photos by Solène Prince, 2022).

DALARNA COUNTY

Dalarna County is a popular tourist destination in Sweden that offers its visitors a variety of cultural heritage experiences and outdoor activities. With its cross-country ski trails and ski slopes, Dalarna holds the reputation of being a world-class ski destination. Seven interviews took place in Dalarna during summer 2022 and an additional sixteen interviews in February 2023 during the ski season. All summer interviews in Dalarna took place on the top of the viewing tower at the Naturum in Siljansnäs. Besides offering exhibition about local nature and culture and providing tourist information, the Naturum at Siljansnäs has a viewing tower that gives a spectacular view of the forest landscape of Dalarna and of Lake Siljan. There are no wind turbines directly visible from this viewing tower though there are wind turbines in Leksand municipality, in which Siljansnäs is located. Therefore, these interviews from the top of the observation tower focused on the wind turbines tourists would have seen in Dalarna on their way to Siljansnäs.

During the summer, one of the researchers visited Ljungåsen in Ludvika municipality, a popular cross-country skiing area in Dalarna where a trail called Vindkraftspår deliberately features wind turbines as part of the cross-country skiing experience. However, no tourists were there during the summer. The researcher thus went back to Ljungåsen in the winter to find tourists to interview. The purpose of doing additional interviews during the wintertime was to include the perspectives of winter tourists in the study, but also to get the perspectives of people recreating in an area that displays wind turbines as part of the landscape experience. Of the 16 interviews conducted in February, ten of them took place at Ljungåsen on the Vindkraftspår featuring wind turbines, four at the small ski hill Fjällberget and two on the Sörskog cross-country-skiing trail from where wind turbines are also visible.

Figure 5. Wind turbines are visible from cross-country trails in Ljungåsen and are also part of the outdoor experience. This sign shows the direction to the 'wind power track'. (Photo by Anke Peters, 2022).

KALMAR COUNTY

We did 20 interviews in Kalmar County, more specifically in Mönsterås municipality and on the nearby island of Öland. Öland is very popular for summer holidays. Its beaches and agrarian landscape are at the heart of its destination image. The island is flat and thus elevated viewing points to contemplate over the landscape are not part of its tourist product, which means that the wind turbines located on Öland are mostly not visible from popular tourist spots. However, wind turbines are visible

from the roads leading to its popular tourist spots. On Öland, there are two nature reserves – Trollskogen and Ottenby – with their own Naturums exhibiting local nature and culture. Trollskogen is located on the northernmost tip of the island and is famous for its pine trees, where the wind has deformed those close to the exposed shore. Ottenby is located on the southernmost tip of the island and consists of diverse habitats, including coastal marsh, marine, woodland and the biggest alvar in Europe – a unique environment based on a limestone plain. Being home to a variety of bird species, Ottenby is highly popular for birdwatching. Wind turbines are not visible from the trails and sites of these two nature reserves, but they are visible in the rural landscape that one needs to drive along to get to them. Therefore, these interviews on Öland focused on the wind turbines tourists would have seen on the island on their way to these nature reserves. Early in summer 2022, five interviews took place at Trollskogen and another five interviews at Ottenby.

Figure 6. Wind turbines are visible in the rural landscape of Öland (on the left) and for hikers on the Mönsterås trail (on the right). (Photos by Solène Prince, 2022).

There are 16 offshore turbines visible from the small fishing port of Kårehamn on the eastside of Öland. In the harbor of Kårehamn, there is a popular fish restaurant. There is also a café adjacent to the harbor and in the harbor area there is a parking space for camper vans open all year round. In 2011, this parking space was named Sweden's amping place in 2011 (Sveriges Ställplats). The 16 wind turbines are about 7km from Kårehamn and are visible to those who park their motor home next to the harbor and to those who eat at the local restaurant and café. Seven interviews took place with tourists with motor homes parked at Kårehamn.

The wind turbines of Åby-Alebo wind park are highly visible from popular nature areas in Mönsterås municipality. For instance, the Mönsterås nature trail passes remarkably close to the wind park and as such its wind turbines are clearly visible and audible from certain spots on the trail. We included the Kverehallen nature area as a relevant site for data collection about perceptions of the wind turbines of Åby-Alebo wind park, and from there 3 interviews took place. This nature area features forest trails, rock outcroppings, and steep slopes. It is a small nature area, and its only hiking trail is approximately 2.5 km long. There is an observation tower and viewing platforms on the rocky slops that give a view over the forest landscape of Mönsterås municipality and the Baltic Sea. From these viewing points, wind turbines of the Åby-Alebo wind park are very much visible to the onlooker.

We chose these case study areas using purposeful sampling. Purposeful sampling is a sampling technique widely used in qualitative research for the identification and selection of information-rich cases for the most effective use of limited resources (Patton, 2002). Purposeful sampling enables qualitative researchers to recruit participants who can provide information about the phenomenon under investigation. By consulting relevant stakeholders, doing preliminary observations, and studying varied materials, we found areas specifically suitable to study to address our research aim. Mostly, we were looking for popular tourist destinations with landscapes of high natural value and where there is wind power infrastructure within the surroundings. Importantly, these had to be destinations where wind power infrastructure is clearly visible to visitors from popular tourist points and routes.

We also looked for destinations to include in the study that could represent diverse types of landscapes of high natural value. As such, Öland and the Mönsterås municipality represent the bucolic landscape of farms and small towns, Ånge municipality represents the landscape of a nature-based destination, while the county of Dalarna and the High Coast destination represent the landscape with rich cultural heritage and high natural value. These diverse types of landscapes helped us consider differences in tourist perspectives due to variations in the landscape's features. Concurrently, we employed this strategy to investigate the similarities in tourist perceptions regardless of the landscape's features. The analysis focused on the overarching similarities revealed in the data.

The participants were approached at visitor sites and attractions, like viewing platforms, trails, information points and nature and culture reserves. Individuals identified as residents of the area (i.e., of the municipality) were excluded from the study. Conversational interviews were conducted in Swedish, German, or English. Most participants were Swedes (n = 43) followed by German-speaking tourists (n = 31). Few represented other nationalities (n = 10). During the conversational interviews, participants described the landscape of the areas they were visiting and what they found most attractive about it. Then, we discussed the presence of wind turbines in the landscapes of the sites that they were visiting and that they had seen during their visit. We spoke to them also about their thoughts on wind turbines in nature areas in general. The interviews lasted around ten minutes and were recorded with the consent of the participants.

The data were analyzed using thematic analysis. The ontological framework guiding our thematic analysis is constructivism, meaning that the focus of our analysis is on people's words and how these produce a particular reality for the study participants and researchers alike (Terry et al., 2017). In a first instance, a two-phase coding process was applied during which initial codes were generated after familiarization with the data. This was followed by collating similar codes into potential themes. In a second instance, members of the research group reviewed the potential themes to check if they worked well in relation to the data. This revision phase enabled us to produce the themes we present next. Out of these, five propositions were then derived to support the operationalization of the survey-instrument. We published the results of our qualitative study in the scientific journal Tourism Geographies (see Prince et al., 2023).

3.1.2 Results from interview data

Five themes emerged from the qualitative data. These themes are based on five themes that demonstrate the general perceptions and experiences of tourists towards wind power installations and landscapes rich in natural heritage. These themes are: 1) a general acceptance of the presence of wind turbines in natural landscapes and close to recreational areas; 2) a perception that wind turbines are essential to modern-day lifestyles; 3) the number and distance of wind turbines from the onlooker as a determining factor for their acceptance; 4) social concerns and a lack of clear information around the impacts of wind power influences perceptions; and 5) wind turbines are experienced as unproblematic by outdoor recreationists. The themes are presented below, while the propositions we derived from them for the operationalization of the survey-instrument are featured in table 2.

THEME 1) GENERAL ACCEPTANCE

Overall, the visitors to destinations in Sweden whom we interviewed did not seem overly disturbed by the presence of wind turbines in the landscapes of the destinations they were visiting. There were some visitors who disapproved of having wind turbines located in nature areas, not wanting to see them close to protected areas, and in not too big quantities close to those areas. However, the visitors interviewed generally seemed to be used to wind turbines and displayed neutral feelings towards the wind turbines they were observing or had observed during their visit. For some tourists, there is nothing special about wind turbines because they see them every day in their countries (i.e., Germany and Switzerland), and are used to their presence in natural and rural landscapes. The following three quotes reflect the habituation and neutrality that many visitors expressed towards wind turbines in natural landscapes in their interviews:

> *I am from Northern Germany, so they are just so normal to me. I see them every day, so I don't really notice them anymore…they are just part of the picture.*

> *I don't really care to be honest with you. It is like, I see them, but I don't think about them really, I just don't mind them. I find them kind of nice sometimes.*

> *I'm not bothered by wind turbines. That's maybe because I haven't heard them. I wouldn't say that I wouldn't be disturbed by their noise, but I'm not disturbed visually.*

> *It does not matter to me really. I feel like they look cool when they are turning. Maybe here would not be a great place with the viewing platform, but if there are a few at, for example, the side of the road or even out in the ocean, that's ok.*

THEME 2) WIND TURBINES AS ESSENTIAL TO MODERN LIFE

Some visitors displayed positive feelings towards wind turbines when they spoke of seeing them in the landscape. Many visitors expressed positive feelings towards the wind turbines they were observing or had observed during their visit by associating them with the necessity for more renewable energy sources for the sake of a sustainable future. This association was reflected through statements like: "We need more energy, and we want more green energy, so we need wind turbines" and "I'm always happy when I see wind turbines, because then I know, there's green energy being made". Mostly, the tourists interviewed saw in wind turbines a solution to the pressing need for increased renewable energy production for a sustainable future. The four quotes below further demonstrate how tourists expressed an acceptance of having wind turbines placed in natural landscape because of a desire for more renewable energy production to support modern-day lifestyles:

> *We need more energy and electricity and more green energy. The prices have already increased so much, and I am sure that they will rise even higher this winter.*

> *Because we must charge our mobile phones, among other things. So, I have decided for myself that I think they are good. I am happy when I see them. The wind is a source of energy that never runs out.*

> *We need more electricity. You see it now in the electricity prices: we are in a crisis. So yes, we need [wind turbines]. Maybe even more of them, even though I personally am not the biggest fan. We need them. I think, we must accept that.*

> *I think we need them. We're talking about the 'green transition' and part of that simply are green alternatives to generate sustainable energy. I think we will just have to accept them here and there, if we want to continue the lifestyle that we have established for ourselves in the Western world.*

THEME 3) DISTANCE AS A DETERMINING FACTOR

While most visitors seemed to accept and even appreciate the presence of wind turbines in the landscape, many of them nonetheless had opinions about where and how they should be placed to avoid damaging the aesthetic experience of the landscape. Many visitors seemed to believe that wind turbines should rather be build offshore than on land. According to these visitors, on land, there is valuable nature that needs to be protected from infrastructural development, while people can also be disturbed by wind turbines if they are put too close to homes. From the interviews, we get a general sense that wind turbines would be less disturbing to visitors if they were kept at a distance from people and sensitive nature. In other words, the turbines should better be somewhere in the distance. The following four quotes illustrate these sentiments:

> *I wouldn't want them in a protected area, like here in the national park, but if I only see them form here in the distance, that is fine.*

> *I think they should rather build [wind turbines] out in the ocean instead of here, that would be great.*

I think if [wind power infrastructure] is too close to people's homes, it is not good, but here, uhm, it seems like a good place. Where there is wind, offshore or here on the fields, that is good. You also see lots of the wooden windmills on the island, so that shows how good Öland is for wind energy.

They need to stand somewhere! And here at the coast and offshore is a perfect place for them! I think it's important that they are not in nature protected areas, national parks or even reserves, but here, perfect!

The quantity of wind turbines observable in a natural landscape also matters, according to the opinion of visitors. Often, the respondents felt that the observed number of wind turbines in the landscape was acceptable as it is, but that there should not be more wind turbines built in the area. More wind turbines would then disturb the experience of the landscape. Overall, a small number of wind turbines spread out over a wide distance seemed to be the most preferable arrangement to preserve the aesthetic appeal of a natural landscape. The following quotes demonstrate how the visitors interviewed made sense of the number of wind turbines that should be placed and where they should be placed in natural landscapes:

There are just a few [wind turbines] here. It would be a different thing if there was a wind park with ten turbines, but that's not the case.

If there are a few, then it is okay, but not too many and they should think about how they are placed in the landscape.

THEME 4) SOCIAL CONCERNS AND LACK OF INFORMATION

Interestingly, the respondents believed that their personal norms regarding wind turbines different from social norms. The respondents held certain beliefs about public opinion surrounding wind turbines and about their impact on natural landscapes. As outlined earlier, many of the visitors were not disturbed by the presence of wind turbines in the natural landscapes during their visit. However, they believed that other people, if put in the same situation of observing a natural landscape with wind turbines visible in it, would answer that they were disturbed by them. It seems to be generally understood that the social norm is that wind turbines are disturbing to the experience of a natural landscape. Yet, many of those interviewed did not associate with this norm, though they believed in its existence. The following two quotes illustrate the seemingly common belief that others, unlike oneself, are disturbed by wind turbines in natural landscapes:

I am surprised because there are fewer turbines than I thought that there would be here. At the same time, I know that there are complaints about them, especially about the visual aspect. Personally, I don't have an issue with wind energy at all.

I think that many people would be bothered by the view here and especially by the lights. I personally am not, but you know, other people would be.

Reference to the media was made by some interviewees when they reflected on what they believed about the impacts of wind power on people, landscapes, and ecosystems. According to the interviewees, there is a lot of misleading information circulating in the media, which confuses the public regarding the real impacts of wind turbines. The three quotes below demonstrate this point:

> *The newspapers are always full of it. There are always coming new wind turbines and they are constantly getting higher and higher…*

> *If they are close to houses, I can imagine that they are very disturbing there and that is maybe also what you've heard about in the media.*

> *I have heard all the arguments: the birds, the shadow, the noise, even the sheep are disturbed by them!*

THEME 5) EXPERIENCES OF OUTDOOR RECREATIONISTS

The results from the interviews in Dalarna during winter illustrate that people partaking in outdoor activities in nature areas, such as cross country-skiing in this case, do not seem to be overly disturbed by the presence of wind turbines in the landscape. This is primarily because the recreationists are fully focused practicing an activity. People derive different forms of experiential value from outdoor recreation, such as social value when they spend time with friends and relatives in the outdoors, or value related to improving personal fitness and skills when they train during physical activity. The two quotes below illustrate how visitors expressed the importance of the aesthetic qualities of the landscape for practicing a physical outdoor activity, such as cross-country skiing:

> *The (ski)track is great today. It is a freshly made track, so the skis are gliding fantastically. Good snow conditions today, and you know it is nice here skiing through the forest, there is a bit of uphill and downhill, but it is not too difficult.*

> *It is so nice here, the weather could be better, but you really get to ski through this fantastic winter landscape. It is a very nice scenery to ski in, a very varied landscape here, which is nice.*

Our interviewees did not pay much attention to the wind turbines, rather it was the quality of the tracks, the weather conditions and the features of the winter landscape that gave value to their outdoor experience of cross-country skiing. The visible presence of wind turbines did not negatively influence the experience of cross-country skiing. Even when the skiers expressed opinions about wind turbines and their negative impacts on landscapes, wind turbines were not described as a factor that negatively influenced the immediate recreation experience. The next two quotes illustrate how the skiers expressed this indifference towards wind turbines in recreational landscapes, with the first one even showing that experiential value can be derived from wind turbines because they bring variety to the landscape:

> *The turbines are close here. It is good that they are here, no one lives here, so they do not disturb. It is nice here. My son likes them a lot, so we go skiing here because it is something special, more interesting for the children and they like it here.*

Yes, there are lots of turbines here. Very close. I do not like them normally. I have nothing against them, you know, but I don't think they are nice. There are good ski tracks here, that is why we come.

Table 2. Propositions derived from the themes to inform the development of the survey tool. (Authors' table)

Proposition 1: Wind turbines do not negatively affect visitors' experience of nature areas and their landscapes.
Proposition 2: Wind turbines can be appreciated for their significance for sustainability and for energy independence.
Proposition 3: It is best if wind turbines are few and far apart from each other in nature areas.
Proposition 4: Tourists rely on perceived social norms and informal knowledge to assess the impact of wind turbines on nature areas.
Proposition 5: Tourists do not notice wind turbines in natural landscapes when they are involved in outdoors activities.

3.2 Content analysis of Instagram pictures

A visual analysis of pictures posted on Instagram social media platform (instagram.com) was conducted to understand how people perceive wind turbines in natural landscapes and how they communicate information about them. Visual analysis improves understanding of how visual material communicates and functions, whether it generates meaning, elicits emotion, or creates a mood (Rose, 2023). Visual analysis can be applied to any visual material, including photography (Rose, 2023). The purpose of this phase of qualitative data collection was to gather information on the features of wind turbines that attract the attention of people who contemplate and photograph them for the purpose of sharing visual contents with others. This phase of data collection served to establish what type of images of wind turbines matter to tourists, and thus should be included in the survey tool to be used as visual prompts along the propositions related to their visual appeal.

3.2.1 Sampling of Instagram pictures

Instagram posts consists of four elements: image, image description, mentions and hashtags. The content analysis we carried out focused on the composition and aesthetics of images of wind turbines found in Instagram posts. Content analysis is a research tool used to determine the presence of certain words, themes, or concepts in qualitative data (i.e., text and images) (Cresswell, 2014). Whilst no specific content analysis was conducted for the textual elements of the Instagram posts we sampled, we checked if they were supported by mentions of words related to 'turbines' and 'wind power' in their image descriptions and if there was a positive, negative, or neutral connotation to these image descriptions.

The content analysis included visual material produced and posted on Instagram by Swedes and Germans. We purposefully choose to compare images produced by German and Swedish users since the survey-tool will be adapted to survey Swedish and German visitors. Images for the content analysis were sampled from the Swedish hashtag #vindkraft and the German equivalent #windkraft. To capture the range of changes in landscapes due to seasonality, a researcher manually gathered the posts during a whole year (from March 2022 to March 2023), using the 'show recent' function for hashtags on Instagram to collect posts regularly. Since the German #windkraft produced substantially more posts than the Swedish #vindkraft, all available Swedish posts were gathered first, and German posts were then chosen manually to match the quantity of Swedish posts produced per month to avoid selection bias. In total, 320 posts were gathered (i.e., 160 with the Swedish hashtag and 160 with the German hashtag) for content analysis using these hashtags. Posts from the following types of individuals were excluded from our sample for the purpose of not producing biased results: activists, political parties, firms from the energy sector, governmental institutions, municipalities, and other public and private stakeholders. Also excluded were posts from constructions workers related to turbines, from professional photographers focusing on wind turbine photography and repeated posts from the same account with a very similar motive.

3.2.2 Results of content analysis

There were some differences between the type of visual content found using the German #windkraft and the Swedish #vindkraft. Overall, differences could not be traced to the socio-political or economic situation in the two countries, but rather could be traced to the types of landscapes found in these countries, the aesthetic preferences of photographers, and the image composition when it came to the quantity and placement of wind turbines in the picture frame. As for image descriptions, mostly similarities were found there. Overall, and possibly mostly due to the nature of the Instagram platform, wind turbines were mostly depicted positively in the posts that we sampled with the hashtags #vindkraft and #windkraft.

LANDSCAPE CHARACTERISTICS

The fact that Germany is more urbanized and industrial, whilst Sweden is more rural with more seemingly untouched natural landscapes made a substantial difference in the types of visual content that was posted on Instagram by the two nationalities with hashtags related to wind power. Overall, around 25.5 % of the German posts sampled depicted wind turbines in an agrarian landscape (e.g., juxtaposed to fields of corn and rapeseed), while 16 % of Swedish posts featured an agrarian landscape. Wind turbines in nature areas with little trace of human influence were depicted in 32 % of the sampled posts by Swedes. Slightly over half of images sampled from the two nationalities did not depict any other infrastructure than wind turbines. In both German (44.5 %) and Swedish (37.5 %) Instagram posts, other types of infrastructure were sometimes visible alongside wind turbines (e.g., roads, houses, power lines and grids). It was common to find elements of recreation featured in combination with wind turbines in the Instagram posts sampled. For Germans, it was primarily cars and bikes that featured alongside wind turbines on these Instagram posts, whilst for Swedes it was primarily boats and bikes.

AESTHETIC PREFERENCES

Germans had the slight tendency to post more gloomy and dark images of wind turbines than Swedes did on Instagram. From our sample, Germans posted more black and white images and had more images taken in partly cloudy conditions or with cloudy dark skies. Swedish posts of images of wind turbines were more likely to be in colour and to depict a clear blue sky. As such 11 % of the German Instagram posts we sampled had black and white images of wind turbines, while 5 % of the Swedish Instagram posts we sampled had black and white images of wind turbines. 34 % of German Instagram posts related to wind turbines had images of dark and gloomy skies, while 24 % of Swedish Instagram posts related to wind turbines had images of dark and gloomy skies. Posts of photos taken at night of wind turbines were slightly more common with the German hashtag. Often, these posts made very visible the red flashing lights of the wind turbines at night. It is not clear if these differences in preferred atmospheric conditions for photographing wind turbines to post on Instagram are a symbol of national attitudes towards wind power. Most of these pictures came without textual support and so there is no straightforward explanation for this difference between the two nationalities.

The two nationalities showed similarities in aesthetic preferences when posting images of wind turbines on Instagram. Of course, it is important to remember that Instagram is a platform where people typically share images representing an idealised version of reality. This means that it was not overly surprising to find aesthetically pleasing photos of wind turbines on this platform, even when we are aware that negative perceptions of the visual impact of wind turbines are common. Most pictures of wind turbines posted on Instagram sampled in this study depicted beautiful landscapes with wind turbines as a main feature. Many people from both Sweden and Germany posted images of the sun setting over wind turbines. The way that wind turbines were photographed in these posts signalled in no way a perceived disturbance to the beautiful landscape, instead being shown as a feature that can produce a beautiful image. Most of the posts that were analysed from both the Swedish and German hashtags depicted wind turbines as the focal element of the image or as an element in the foreground of the image. Figure 7 shows photos, taken during the qualitative phase of the project, which exemplify typical Instagram posts published by Swedish and German users.

Figure 7. Photos exemplifying typical images published on Instagram by Swedish (left) and German (right) users. (Photos by Solène Prince, 2022 (left) and Anke Peters, 2022 (right)).

TURBINES AND IMAGE COMPOSITION

Posts featuring offshore wind turbines were more common in the Swedish content sampled. Only 1 % of the sampled German posts depicted offshore wind parks, whilst 12 % of Swedish posts did. Most of the posts that were analysed from both the Swedish and German hashtags depicted wind turbines as the focus of the image or as an element of the foreground of the image. In many instances, wind turbine could be understood as mere scenic elements that people wanted to photograph. For Swedes and Germans on Instagram, wind turbines appear as aesthetically pleasing physical features that can be photographed for their intrinsic appeal.

IMAGE DESCRIPTIONS

The posts that were analysed were mostly produced to offer beautiful depictions of natural and rural landscapes. These posts were generally not produced to make any sort of statement against or for wind power development. Very few of them had text supporting a statement about wind power development or expressing an opinion about the presence of wind turbines in natural landscapes. When it comes to the image descriptions of the Instagram posts we sampled, the two nationalities showed similarities. Only 33 % of the Swedish posts we sampled mentioned words related to wind power (e.g., wind energy, wind turbines, windiness, productivity) in their image description. These descriptions were mostly neutral in tone (23 %), simply acknowledging the content in the image. A small portion of the image descriptions signalled a positive attitude towards wind turbines (9 %), while only very few (1 %) signalled a negative attitude. Similarly, only 36 % of the German posts we sampled mentioned words related to wind power in their image description. These descriptions were mostly neutral in ton (24 %), simply acknowledging the content in the image. A small portion of image description signalled a positive attitude towards wind turbines (7 %) and another small portion signalled a negative attitude (6 %). Generally, the posts of wind turbines we analysed that featured sunsets or natural landscapes were not supported with words related to wind power in their image description. Whereas with posts of wind turbines that featured human elements in the landscape (e.g., buildings, infrastructure, roads, industrial activity), there was often an image description mentioning wind turbines and their productivity.

Table 3. Findings derived from the visual analysis to inform the creation of visual prompts for the development of the survey tool. (Authors' table)

Wind turbines are often featured in combination with man-made features (i.e., roads) and/or man-made landscapes (i.e., agriculture).
People enjoy beautiful landscapes with wind turbines as main features.
Wind turbines are particularly appealing to photograph on sunny days with blue skies in the background.
Wind turbines are perceived as scenic elements in a panoramic landscape.
People take pictures to show a positive inclination towards the meaning and aesthetics of wind turbines in landscapes.

4. Quantitative research

In this chapter, we first present the conceptual framework (see Figure 8) that guided us in the development and testing of the survey tool. We then introduce the content and structure of the survey tool for measuring the perceived value of tourism at destinations where there is wind power infrastructure visible in nature areas. We outline how we have designed it using our qualitative results, literature on tourism and wind power, and even research on sustainable consumer behaviour. Each section of the survey is introduced and explained in its own sub-chapter, where we also provide respective panel results. We present an analysis of the results of each section of the survey to assess the validity of the measurement instruments and to even give results on the experiential value of tourist experiences in nature areas with wind power infrastructure.

4.1 Conceptual framework

Tourists experience a wide range of emotional and epistemic benefits when they visit nature areas (Williams & Soutar, 2009). Research on tourism experience in nature areas has established that the most important benefits derived from activities in nature typically include relaxation, connection to nature and appreciation of its beauty, experiencing tranquility, escaping daily routines, learning and being able to physically exercise (e.g., Pan & Ryan, 2007; Skår et al., 2008; Chekalina 2018). Studies have also emphasized the importance of spirituality, ethics and sustainability for tourists participating in outdoor activities (Holbrook, 1999; 2006; Heintzman, 2009; Hanna et al., 2019).

Studies have consistently demonstrated that there is a connection between the perceived value of a tourism experience and tourist behavioral intentions to visit and recommend a destination. This makes consumer value a crucial focal point in tourism research, particularly concerning the ethical and sustainability dimensions of tourism experience (Gallarza et al., 2017; Gallarza & Saura, 2020). Understanding the implications of trends related to environmental awareness on customer value is crucial in consumer behavior research as society shifts towards sustainable consumption practices (Zeithaml et al., 2020, Gallarza & Saura, 2020). With rising public awareness for environmental issues, we find it necessary to consider different aspects of the customer value in our conceptual framework.

In Chapter 2, we identified tourists' pro-environmental attitudes and awareness of sustainability issues as key factors explaining tourist responses to wind turbines in nature and recreational landscapes. We further corroborated these findings with our qualitative research (Chapter 3). With our qualitative research, we saw that tourist who encounter wind power infrastructure in nature and recreational landscapes associate the experience of seeing this infrastructure with the need for green energy and the possibility for a sustainable future. However, these positive reactions come in opposition to local concerns regarding the negative impacts of wind power infrastructure on environment and society.

In both the literature and with our qualitative study, we identified a wide range of opinions towards wind power infrastructure in nature areas. These diverse opinions on wind power and its infrastructure relate primarily to sustainability issues (including a renewable energy transition and combating climate change) and establish the context for understanding tourists' response towards destinations where wind power infrastructure is visible in nature areas. The literature and our qualitative study also highlights that tourists' participation in outdoor activities influences their responses to wind power infrastructure.

The literature and our qualitative study inform the conceptual framework as shown on Figure 8. This conceptual framework guided the development of the survey tool. It enabled us to position the perceived value of tourism experience in nature areas with wind power infrastructure within the broader context of sustainable tourist behavior. Hence, important to the development of the survey is the application of theories of pro-environmental and responsible consumer behaviour. To this effect, we grounded our approach in the psychological theory of planned behaviour (TPB) (Ajzen, 1985, 1991) derived from the theory of reasoned action (TRA) (Ajzen and Fishbein, 1980). In the rest of this section, we describe the main theoretical elements which make up our conceptual framework, including behavioural intentions, attitudes towards pro-environmental consumption and anticipated emotions of pride and guilt associated with decision to engage or not engage in pro-environmental behaviour.

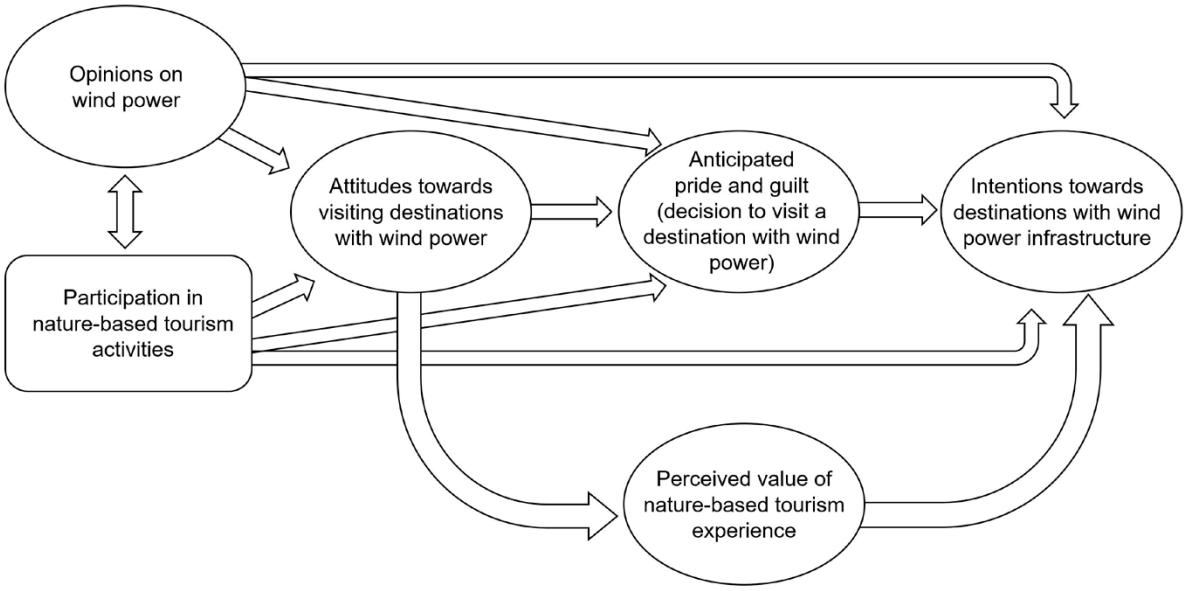


Figure 8. Conceptual framework.

Behavioural intentions. Researchers use the TPB model to identify predictors of behavioural intentions, such as attitudes towards consumption that have the capacity to transform into actual behaviour. To improve the predictive power of the model, researchers can add constructs or even integrate the TPB model with other models, such as norm activation theory (NAM) (Schwartz, 1977), to explain environmentally-friendly behaviour (Onwezen et al., 2013). Generally, pro-environmental behavioural intentions include:

- using environmentally friendly products (Onwezen et al., 2013),
- purchasing green or organic products (Yadav & Pathak, 2017; Teng & Wang, 2014),
- buying sustainable clothes (Rausch and Kopplin, 2021),
- using public transportation (Onwezen et al., 2013; Sumaedi et al., 2016),
- In tourism, pro-environmental, responsible, and ethical behavioural intentions include,
- participation in slow tourism (Meng & Choi, 2019),
- participation in last chance tourism (Woosnam et al., 2022),
- willingness to stay at a green hotel and recommend it to others (Wang et al., 2022),
- purchasing local food (Brune et al., 2021),
- willingness to visit an eco-friendly destination (Ashraf et al., 2020),
- following environmental protection guidelines in scenic areas (Wang et al., 2019),
- persuading others to engage in green consumption (Liu et al., 2019; Tang et al., 2023),
- volunteering (Liu et al., 2019).

Following Ashraf et al. (2020) and Wang et al. (2022), who consider the willingness to choose an eco-friendly destination or green hotel as examples of pro-environmental consumption, we identified the willingness to visit a destination where there is wind power infrastructure as the manifestation of pro-environmental and responsible tourist behaviour. Moreover, tourists can demonstrate two types of behavioural intentions towards a destination: 1) the intention to visit or revisit the destination, and 2) the intention to recommend visiting the destination to others (i.e., positive word of mouth) (e.g., Boo et al., 2009; Kladou & Kehagias, 2014; Garcia et al., 2012; Chekalina et al., 2018). Such intentions indicate the degree of attachment towards a destination and its brand. The intentions result from the tourist's evaluation of the benefits of visiting the destination and the sacrifices that need to be made to visit it (Chekalina, 2022). Therefore, as part of behavioural intentions we also considered the willingness to recommend others (i.e., friends and relatives) to visit a destination where there is wind power infrastructure as an aspect of pro-environmental and responsible tourist behaviour.

Attitudes. In the TPB model, behavioural attitude is a predictor of behavioural intention. Both in tourism behaviour and in general consumer behaviour, attitude refers to the degree of favourability or non-favourability felt towards a specific pro-environmental or pro-societal behaviour. Repeatedly, research has confirmed the positive relationship between attitude towards pro-environmental behaviour and intention to behave in an environmentally responsible manner (i.e., Yadav & Pathak, 2017; Liu et al., 2019; Woosnam et al., 2022).

Anticipated emotions. The anticipation of feeling emotions of pride and guilt significantly influences intentions to behave pro-environmentally (Onwezen et al., 2013). Specifically, behavioural attitude strongly influences behavioural intention when it is mediated by positive emotions of anticipated pride from engaging in pro-environmental consumption (Onwezen et al., 2013). Recent studies provide further evidence supporting the role that anticipated emotions directly or indirectly play in influencing behavioural intentions towards pro-environmental, pro-societal and ethical consumption. For instance, both anticipated pride and guilt are important predictors of tourist civility (Qiu et al., 2022), intentions to reduce food waste (Alsuwaidi et al., 2022), and intentions to engage in pro-environmental behaviour (Shipley et al., 2023). Zhu et al. (2022) confirmed the positive influence of anticipated positive emotion of pride on pro-social travel behaviour with their study of tourists at heritage tourism sites. Conversely, their study does not support the effect of anticipated negative emotion of guilt on pro-social travel behaviour. Wattanacharoensil et al. (2022) support the role of anticipated negative emotions of guilt in influencing tourists' intentions to behave ethically towards animals during their travels.

Following an overview of the survey tool and data collection, we apply the conceptual framework to analyze our quantitative findings. We discuss the measurement of each element of the conceptual framework separately in the sections where we introduce the framework element for the first time. Moreover, we employed the survey tool to research wind power facilities as green tourism attractions. These results are presented last in the chapter.

4.2 Survey design

As a brief general overview, the survey includes the following sections:

- **The outdoor tourism profile** (see 4.4.4): This section introduced the survey and assists the respondents in recalling the relevant aspects of their experience of outdoor recreation. It includes questions related to one's familiarity with outdoor activities, engagement in outdoor activities, and experience with hiking in nature with or without overnight stays, desired duration of hiking trips, preferred companionship, transportation preferences, and accommodation options. Based on these responses, we build a grouping variable, which we use further in analysis.
- **General perceptions, values, and beliefs about sustainability**: This section asks respondents to recall their personal perceptions, values, and beliefs on sustainability. It includes statements related to one's awareness of negative consequences of environmental threats for others, perceived responsibility, and ability to improve the situation, personal norms emphasizing moral obligation. These statements are measured on a 1–7-point Likert scale (from 1 – fully disagree to 7 – fully agree).
- **A short film with photos, text, and audio narration**: Respondents watched a short film prior to answering questions concerning wind power infrastructure and its impact on their tourism experience. This enhances the validity of the survey tool and its relevancy for the context of tourism experience in nature area with wind power infrastructure because it ensures that respondents have experienced the scenario under study before they evaluate statements about it. We address the limitations of the approach in the concluding sections. In the film, respondents see a story about a visit to a nature area outside their usual environment with two

overnight stays where they encounter wind turbines at varying distances. The design of the film is based on the qualitative phase of the project (i.e., observations and interviews with visitors, interactions with stakeholders, visual content analysis of wind turbine on social media). Table 4 presents the photos and texts used to describe the tourism experience shown in the short film. The hiking experience of the film is not related to a specific destination. Nonetheless, the experience includes typical characteristics of a hiking trip in Sweden.

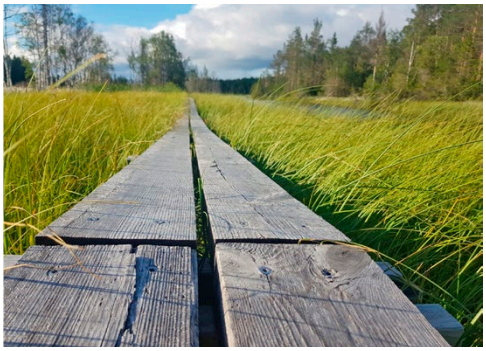
- **Perceived value of the visit** (see 4.4.6): This section is used to collect data for testing the impact of wind power infrastructure on the tourism experience in nature areas. It includes statements to assess various aspects of the emotional, epistemic, and spiritual value of the hiking trip experience shown in the short film. The measurement of the perceived value of the visit is extended to include perceived sustainability value in accordance with prior literature on altruistic and ethics value. These statements are measured on a 1–7-point Likert scale (from 1 – fully disagree to 7 – fully agree).
- **Trust in destination sustainability**: This section asks respondents to evaluate their trust in messages and actions taken by destinations offering outdoor activities in Sweden. Trust is measured using several statements measured on a 1–7-point Likert scale (from 1 – fully disagree to 7 – fully agree).
- **Opinions on wind power** (see 4.4.2): This section contains 28 statements based on the results of the qualitative phase of the project and measured on a 1–7-point Likert scale from 1 – fully disagree to 7 – fully agree). We use this section to understand opinions on wind power among potential tourists in nature areas. We also use the data to build a grouping variable to differentiate between the respondents with more positive and more negative opinions on wind power, which we use for data analysis further in the report.
- **The impact of the location of wind power infrastructure on the tourism experience in nature areas** (see 4.4.1, 4.4.3, 4.4.4, and 4.4.5): We use this section of the survey primarily to collect data for testing the impact of wind power infrastructure on the perceived value of tourism experience in nature areas. This section includes statements to evaluate one's attitude towards encountering wind turbines during a nature experience, expected guilt, and expected pride from refraining to visit or deciding to visit an area where there is wind power infrastructure, behavioral intentions towards destinations where there is wind power infrastructure in nature areas, and attitudes and intentions towards visiting a wind power facility. These statements are measured on a 1–7-point Likert scale (from 1 – fully disagree to 7 – fully agree).
- **Socio-demographic profile** (see 4.2): This section includes general questions about the respondents' year of birth, gender, and place of residence. It is included to provide a general profile of those who participated in the study.

Both the survey questions and text in the short movie were first written in English and then translated to Swedish. The translations were done by native Swedish speakers with expertise in nature-based tourism and outdoor recreation, destination development, and pro-environmental tourism. Several experts from the wind power sector supported the development of the text and helped with choosing the photos included in the short film.

Table 4. The content and structure of the short film included in the survey to illustrate a hiking trip in areas where there is wind power infrastructure

Text	Foton
Du har bestämt dig för att tillbringa några dagar i ett naturområde utanför din vanliga omgivning (minst 100 km bort från hemmet). Du reser dit antigen själv eller tillsammans med vänner eller familjemedlemmar. Vad du föredrar! Du är borta i två nätter och vandrar ute i naturen under två dagar.	 Photo: Anke Peters
Du åker först till resmålet och bor en natt i en stuga som ligger i närheten av naturområdet där du vill vandra.	 Photo: https://www.freepik.com/premium-photo/cabin-with-turf-roof-norway_29810678.htm
Dagen efter äter du frukost och sedan tar du dig till starten av vandringsleden.	 Photo: Tatiana Chekalina

Text	Foton
På väg till starten av vandringsleden ser du, ibland, vindkraftverk i naturen. De ligger på kort avstånd från vägen. De är synliga från vägen när man reser mellan destinationens olika besöksmål. *Comment: the photo was taken during the qualitative phase of the project.*	 Photo: Solène Prince
Nu är du på plats! Du tar på dig ryggsäcken och börjar vandra.	 Photo: Wieland Schwarz
Mitt på dagen, runt lunchtid, stannar du och äter maten du har tagit med dig.	 Photo: https://www.freepik.com/free-Foto/cup-with-coffee-extinguish-fire_5635063.htm
Efter lunchen fortsätter du att vandra och njuter av den vackra utsikten.	 Photo: Solène Prince

Text	Foton
Någon gång under vandringen ser du vindkraftverk på längre avstånd i naturen (ca 3–10 km). De är synliga i landskapet från vandringsleden men kan ändå upplevas som små. *Comment: the photo was provided by the department for sustainable development at the County Administrative Board of Dalarna.*	 Photo: Benedict Alexander
Kvällen närmar sig. Du hittar den perfekta campingplatsen vid vattnet och slår upp tältet.	 Photo: Wieland Schwarz
Dags att göra upp en eld och fixa middag. Sedan är det läggdags.	 Photo: Anke Peters
Nästa dag äter du frukost. Efter att ha packat ihop dina saker fortsätter du med vandringsturen.	 Photo: Anke Peters

Text	Foton
Du kommer till en plats där vindkraftverk syns på kort avstånd och ligger mindre än 3 km bort. När man befinner sig i naturområdet som du besöker är vindkraftverken tydligt synliga. *Comment: the photo was taken during the qualitative phase of the project.*	 Photo: Solène Prince
Under vandringen finns möjligheten att vandra på leder som visar upp vindkraftverk. Här kan du lära dig mer om förnybar energi. *Comment: the photo was taken during the qualitative phase of the project.*	 Photo: Anke Peters
Det finns skyltar med information om vindkraftsparken och om förnybar energi. Det står även att vindkraftsparken varje år bidrar med bygdepeng för skötsel och underhåll av stigar och leder i området. Föreningar som är aktiva i området kan också ansöka om bidrag från vindkraftsparkens bygdepeng för att stödja sin verksamhet. *Comment: the photo was provided by the department for sustainable development at the County Administrative Board of Dalarna.*	 Photo: Kajsa Kilström
Du fortsätter att vandra och njuter av den vackra utsikten över naturlandskapet.	 Photo: Wieland Schwarz

Text	Foton
Du upptäcker vindkraftverk på långt avstånd i landskapet. Dessa vindkraftverk är ungefär 35 km bort. De är synliga i horisonten, men kan vara svåra att urskilja. De är bäst synliga vid mulen väderlek och nästan osynliga vid klarblå himmel. En molnig dag skulle de vara helt osynliga. *Comment: the photo was taken during the qualitative phase of the project.*	 Photo: Anke Peters
Du ser naturens vackra färger runtomkring dig.	 Photo: Anke Peters
Du tar en paus för att äta lunch och sedan vandrar du tillbaka till startpunkten. Det är dags att åka hem.	 Photo: Anke Peters
Nu är du hemma igen efter din vandringstur.	 Photo: Pixabay

4.3 Data collection

To test the survey tool on a non-specified destination, we used a panel database provided by the Netigate survey platform. Online panels are increasingly used in tourism research, allow to draw a sample of respondents with specific profile and are advantageous in terms of cost, speed and reach. The self-selection of panel members, however, introduces bias (Callegaro et al., 2014).

We targeted Swedish residents who were at least 18 years old and sought a representative sample of the Swedish population. Only included in our results were the respondents who answered "yes" to the profiling question: "Have you visited a nature area with or without overnight stay in connection with travel to a destination outside your usual environment during the last 5 years?".

Out of the 618 Swedish participants of the survey panel who responded to the invitation, 517 of them answered the screening question. Based on the screening question, 378 panel participants were eligible to continue the survey. In total, 309 panel participants completed the survey. However, nine cases were removed from the analysis because a quality check revealed that they gave contradictory answers. In our report, we call "respondents" the individuals who we include in our survey results. Due to the drop-out from the survey, the number of respondents varies for different survey parts. In total, we have approximately 300 usable responses for each section of the survey. Figures 9, 10 and 11 illustrate the socio-demographic profile of the respondents who completed the survey.

As we used a panel of respondents rather than respondents situated in a real destination context, the presentation of the short film to our respondents was crucial to ensure the validity of the survey. Showing the short film on a tourism experience of nature area where there is wind power infrastructure ensures that respondents have experienced the scenario under study before they evaluate statements about it. The tourism experience described in the short film does not represent a specific destination. This enhanced the generalizability of the survey as we sought to test its measurement instruments. However, this approach also has its limitations. The non-specific character of the destination being evaluated means that the results that we present do not consider the impact of various contextual factors that can influence the attractiveness of a destination. These factors that we are not accounting for include destination brand, tourist infrastructure such as attractions and accommodation, the supply of tourist activities, the quality of hiking trails, tourist information, accessibility, and place attachment and customer loyalty.

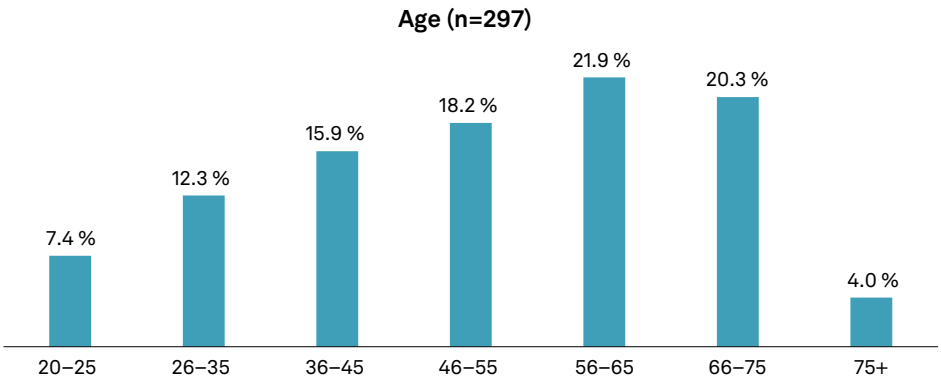


Figure 9. Age distribution of survey respondents.

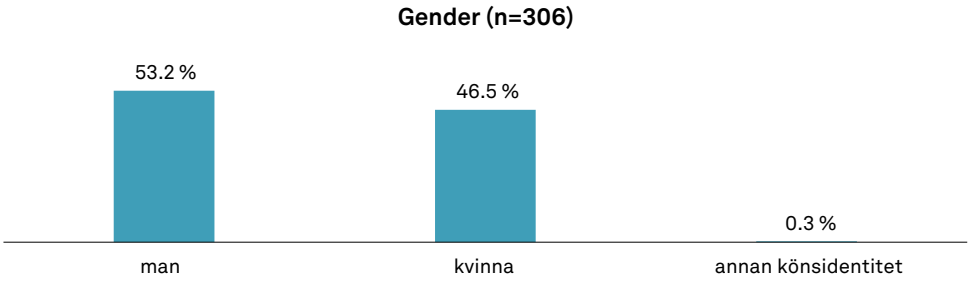


Figure 10. Gender distribution of survey respondents.

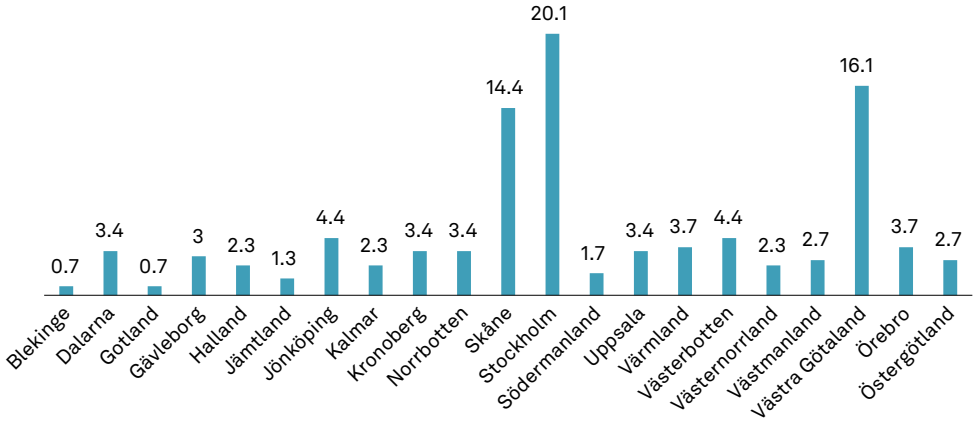


Figure 11. Place of residence of survey respondents (n=298).

4.4 Survey results and analysis

In this section, we present the analysis of the survey results in seven subsections organized in accordance with the conceptual framework in 4.1. They are: (1) intentions towards destinations with wind power infrastructure, (2) opinions on wind power, (3) attitudes towards visiting destinations with wind power, (4) outdoors activities, (5) emotions associated with decision to visit a destination with wind power, (6) perceived value of tourism experience in nature areas, (7) wind power facilities as tourist attractions.

4.4.1 Intentions towards destinations with wind power infrastructure

We apply the survey tool to a non-specified tourism destination, which means that we do not consider respondents' attachment to a specific destination and its brand. This approach inevitably implies limitations because each place has its unique character (see conclusion chapter for further discussion of the limitations). However, it is a necessary trade-off in a situation where the survey tool is tested for the first time using a panel of respondents. This approach enhances the generalizability of the results. As the aim of this project is to develop and test a survey tool, it is best not to address the specificity of different destinations at this point nor the variety of outdoor activities that can be practiced at different destinations. This means though that the survey tool will need to be further adjusted to the context of a specific destination when applied in practice.

This study focuses on outdoor activities that can be practiced as part of a tourism experience in nature areas, primarily hiking. The behavioural intentions we seek to evaluate include both intentions to visit and intentions to recommend a non-specified destination where there is wind power infrastructure in nature areas (in the survey we label this non-specified destination as "nature-based destination" implying that the actual name of the destination where the survey is applied should replace this label). We therefore integrated these two statements in the survey about behavioural intentions in the context of visitation to any nature area where there is wind power infrastructure:

- In the foreseeable future (i.e., within 2 years), I intend to visit a nature-based destination where I can see wind power infrastructure in nature.
- I would recommend to my friends and relatives to visit a nature-based destination where they can see wind power infrastructure in nature.

As figure 12 shows, 32 % of respondents agree to a varied extent[1] and 30 % disagree[2] with the statement regarding the plausibility of them visiting a destination where there is wind power infrastructure in nature areas soon (i.e., within 2 years). 28 % of respondents agree to a varied extent and 33 % disagree that they would encourage others to visit such destinations.

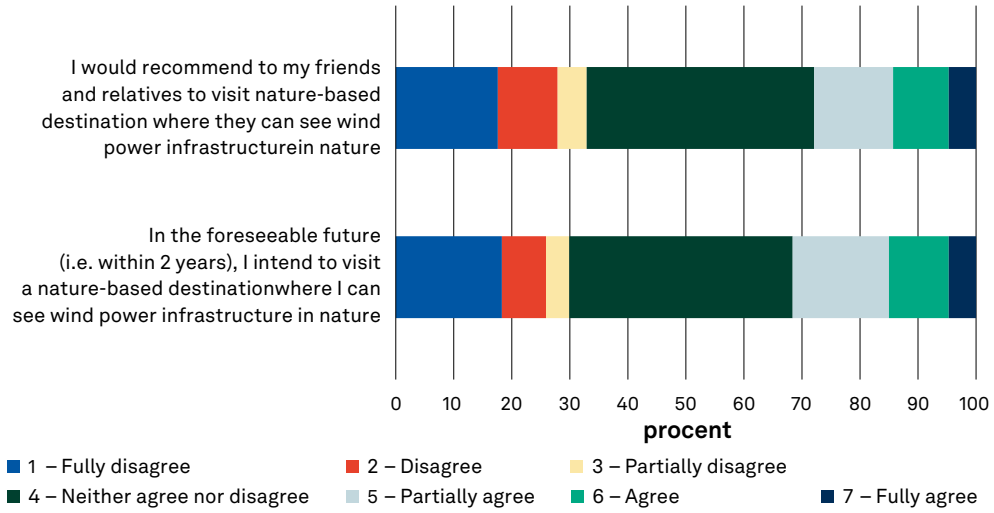


Figure 12. Behavioural intentions towards destinations with wind power infrastructure in nature areas (n=301).

[1] To ease the interpretation of results, we aggregate positive response options on the 1–7 Likert scale (5 – partially agree, 6 – agree and 7 – fully agree) and refer to them as "agree" or "agree to a varied extent".

[2] To ease the interpretation of results, we aggregate negative response options on the 1–7 Likert scale (1 – fully disagree, 2 – disagree and 3 – partially disagree) and refer to them as "disagree" or "disagree to a varied extent".

4.4.2 Opinions on wind power

In this section, we present and interpret survey results of opinions regarding wind power, its development, and the presence of its infrastructure in nature areas. Section 2.1 of the literature review provides an overview of previous research on tourist opinions, perceptions, and attitudes towards wind power infrastructure in nature areas in relation to factors such as visual impact, aesthetic attractiveness, perceived disturbances, environmental attitudes, personal values, and perceived benefits. This literature was essential to develop questions and statements regarding opinions about wind power. Besides information found in the literature, the qualitative data collection of the project also generated information essential to design survey questions related to tourist opinions on wind power. Five propositions were developed from the interview data collected early in the project about tourist experiential value of nature areas with wind turbines (i.e., section 3.1.2). Four of these propositions are integrated in the survey in the form of multiple statements to be evaluated by survey-participants. These statements represent the breath of opinions amongst tourists surrounding wind power and its infrastructure in nature areas that we captured during our qualitative research. The fifth proposition, derived from interviews with tourists involved in outdoor activities, was not used to generate such statements. This proposition is integrated in the survey to identify respondents prone to engaging in activities, such as hiking and tent camping during their visits to nature areas. We have divided this section into sub-sections to highlight the four propositions: 1) visitor experience, 2) perceptions of sustainability, 3) opinions on location, and 4) opinions formed in social context.

After, we use exploratory factor analysis to understand the underlying structure of opinions on wind power among potential tourists in nature areas. We use the results of the factor analysis to build a grouping variable to distinguish between the respondents with more and those with less favorable opinions regarding wind power infrastructure in nature areas. With this grouping variable, we can analyze the data to identify relationships between opinions about wind power and other important factors related to tourist visitation of destinations with wind power infrastructure in nature areas.

VISITOR EXPERIENCE

From the analysis of the qualitative data, we identified habituation and neutrality as major themes explaining the tourist experience of wind turbines in nature areas. We thus formulated a first proposition: **“wind turbines do not negatively affect visitors’ experience of nature areas and their landscapes”**. For the survey, we used this finding to formulate nine positively-oriented statements and three negatively-oriented statements about the visitor experience in relation to the presence of wind power infrastructure in nature areas. These nine statements and their corresponding responses are illustrated on Figure 13.

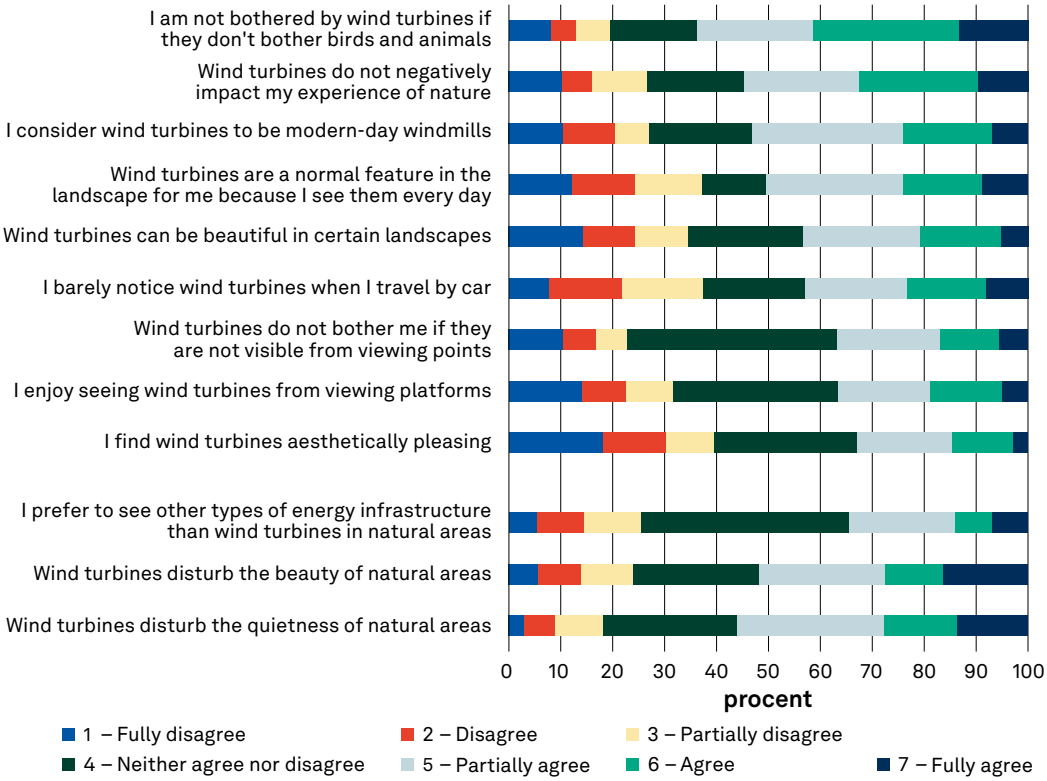


Figure 13. Tourist's perceptions of wind power infrastructure during their visitor experience of a natural landscape.

As for the results, more than half of the respondents (56 %, n=309) agree and 18 % disagree that wind turbines disturb the quietness of nature areas. Also, more than half of respondents (52 %, n=309) agree to a varied extent that wind turbines disturb the beauty of nature areas. 24 % of respondents disagree with this statement about wind turbines disturbing the beauty of nature areas. Nonetheless, 55 % (n=309) agree to a varied extent with the statement "wind turbines do not negatively impact my experience of nature". 27 % of respondents disagree with this statement about wind turbines not disturbing their experience of nature. However, the high proportion of neutral responses to the statement "Wind turbines do not bother me if they are not visible from viewing points" in comparison with the statement regarding the impact of wind turbines on experience (i.e., 37 % agree to a varied extent, 23 % disagree and 40 % are neutral) potentially indicates the need to rephrase the statement to improve its clarity to respondents.

Results show that 64 % of respondents (n=309) agree to a varied extent with the statement "I am not bothered by wind turbines if they don't bother birds and animals", while 20 % disagree with this statement. This can be interpreted as meaning that the impact of wind turbines on birds and animal is a significant concern for tourists. As for those who disagree, it either means that they do not believe that wind turbines can be built and operated so to not have an impact on birds and animals, or that they have other negative concerns about wind turbines besides the conservation of bird and animal life.

53 % (n=308) of respondents agree to a varied extent with the statement "I consider wind turbines to be modern-day windmills", while 27 % of them disagree. This demonstrates that a significant number of tourists can relate the development of wind power infrastructure in nature areas to the evolution of the industrial landscape of rural areas.

To the statement "wind turbines can be beautiful in certain landscapes", 44 % of respondents answered that they agree to a varied extent (n=308) and 35 % answered that they disagree. To the statement "I enjoy seeing wind turbines from viewing platforms", 37 % of respondents answered that they agree to a varied extent (n=309) and 32 % answered that they disagree. To the statement "I find wind turbines aesthetically pleasing", 33 % of respondents answered that they agree to a varied extent (n=308) and 40 % answered that they disagree. The results indicate that the respondents' opinions on the aesthetic appeal of wind turbines are highly polarized.

A recurrent theme raised especially by foreign visitors during the qualitative study was the banality of seeing wind turbines in nature areas because they are common in many places. We thus included in the survey the statement "wind turbines are a normal feature in the landscape for me because I see them every day". To this statement, 50 % (n=309) of respondents agree to a varied extent and 37 % disagree. Noteworthy, there were very few neutral responses to this statement about the banality of wind turbines (12 %). It remains unclear to what extent these responses reflect the general commonness of wind power infrastructure, the effect of information about wind power circulating in the media or actual daily encounters with wind turbines. These results can however be compared to the responses to a more specific statement about the banality of seeing wind turbines in natural landscapes ("I barely notice wind turbines when I travel by car") to which 43 % (n=308) of respondents agree to a varied extent, 20 % remain neutral, and 23 % disagree.

Finally, a substantial proportion of respondents (40 %, n=308) remained neutral in their response to the statement "I prefer to see other types of energy infrastructure than wind turbines in nature areas". 34 % of respondents agree to a varied extent to this statement and 26 % disagree. We interpret this as meaning that the specific type of energy infrastructure is not very relevant to the tourist experience of nature areas impacted by industrial development.

PERCEPTIONS OF SUSTAINABILITY

The second proposition that we derived from the qualitative results of the study suggests that **"wind turbines can be appreciated for their significance for sustainability and for energy independence"**. From this proposition, we formulated 7 positively oriented statements to include in the survey. (Figure 14).

A very high proportion of respondents (72 %, n=308) agree to a varied extent with the general statement "We need more renewable energy infrastructure to combat climate change". A small proportion, only 9 %, disagree with this statement. When it comes to the statement specifically about needing more wind power infrastructure to combat climate change, the proportion of respondents who agree is like the proportion of respondents who agree with the general statement (69 %, n=309). However, the proportion of respondents who disagree with the specific statement about needing more wind power infrastructure is almost twice as high (17 %) as the proportion of respondents disagreeing with the general need for more renewable energy infrastructure. 46 % of respondents, meaning almost half of them, disagree (from fully disagree to partially disagree) with the statement "there are no other alternatives than to build more wind turbines to combat the climate crisis".

Overall, as we proposed, the survey shows that many tourists see in wind turbines the possibility for a sustainable future. A substantial proportion of respondents (61 %; n=308) indicate appreciating wind power as a source of affordable energy (i.e., "More wind turbines mean having more affordable energy"). About half of the respondents express positive feelings towards wind energy (i.e., "I am happy when I see wind turbines because it means renewable energy is being produced"; 51 %; n=309) and acceptance towards wind power in nature areas (i.e., "Wind turbines can be placed in nature areas because we need them, and they must be placed somewhere"; 48 %; n=308). Finally, more than one third of respondents (38 %; n=308) agree or somewhat agree with the statement "Wind turbines are beautiful to see because they produce renewable energy").

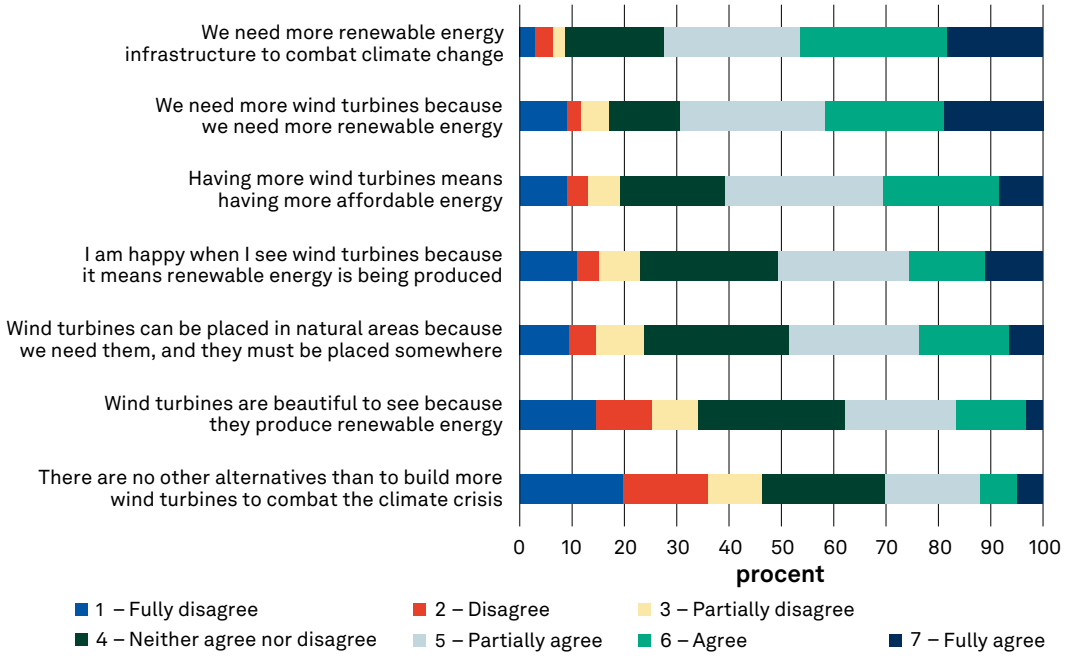


Figure 14. Tourist's perceptions of sustainability when they see wind power infrastructure in natural landscape.

OPINIONS ON INFRASTRUCTURE

The third proposition derived from our qualitative research relates to opinions on the location of wind turbines. Many tourists expressed their opinions on this matter, leading us to propose: **"it is best if wind turbines are few and far apart from each other in nature areas"**. Figure 15 shows the responses to the six statements formulated to address this proposition.

As we proposed, most tourists do not believe that wind turbines should be placed near homes or beautiful natural landscapes. The survey shows that many respondents agree to a varied extent that wind turbines should not be placed close to living areas (67 %; n=309) or in areas of rich natural heritage (61 % n=309). A similar proportion of respondents (57 %; n=308) agree to a varied extent with the statement that "the presence of a few wind turbines in a nature area does not bother me". We see that 49 % of respondents agree to a varied extent that it is better to locate wind power infrastructure offshore than onshore. Also, 44 % of respondents agree to a varied extent that "it is better to concentrate wind turbines in one place, rather than have them spread out". Remarkably, 38 % of respondents provided neutral answers to both questions, which indicates that more than one third of respondents do not have a clearly formed opinion regarding these statements.

Finally, opinions were polarized when it came to the statement "I don't expect wind turbines to be in forested areas", as 38 % agree to a varied extent and 34 % disagree to a varied extent with the statement. This could mean that over a third of respondents don't expect wind turbine to be in nature areas because this is not the most strategic place to put them according to them, but it could also reflect that they chose to visit nature areas where they do not expect to see wind turbines, though it could be strategic to put them in some nature areas.

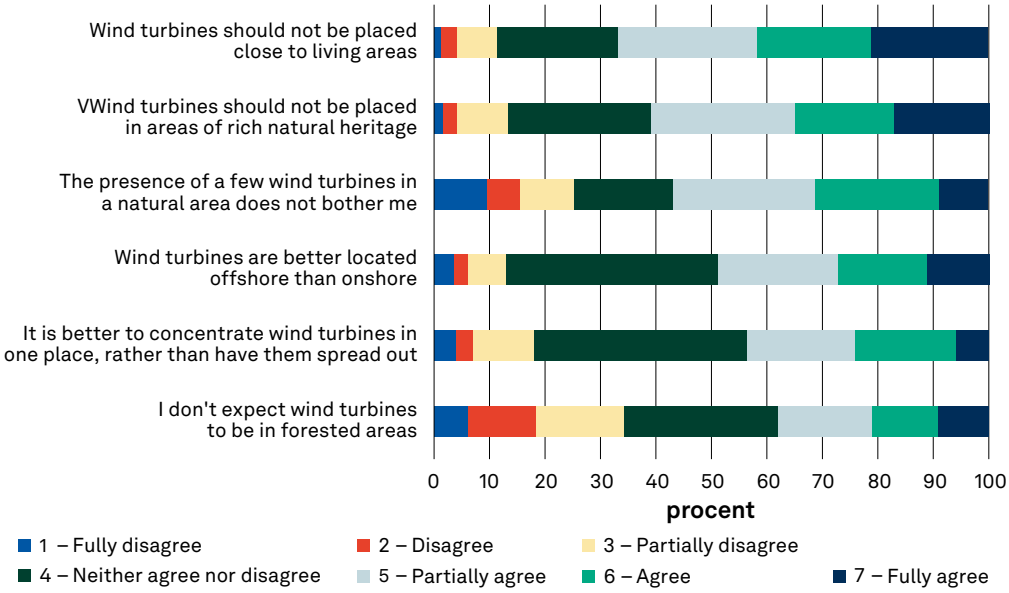


Figure 15. Tourist's perceptions of where wind infrastructure should be in natural landscape.

OPINIONS FORMED IN SOCIAL CONTEXT

The fourth proposition concern tourists' reliance on information acquired through social interactions to form their opinions on wind power infrastructure and its development. During the on-site interviews, when talking about wind power, the tourists tended to give their opinions and then contrast them to what they believed to be the opinions of the general population. We thus formulated the proposition that "**Tourists rely on perceived social norms and informal knowledge to assess the impact of wind turbines on nature areas**". Figure 16 shows the responses to the three statements (i.e., one negative, one positive and one neutral) formulated to address this proposition on the survey.

Firstly, we formulated the statement "a lot of people are against the presence of wind turbines in nature areas, but I am not". To this statement, about half of the respondents agree to a varied extent. These positive answers corroborate the results from the qualitative study. The proportion of respondents disagreeing with the statement is also rather high (23 %, n=309). This could indicate that respondents either disagree that other people are against wind power infrastructure development, or that they themselves are not against the development of wind power infrastructure in nature areas.

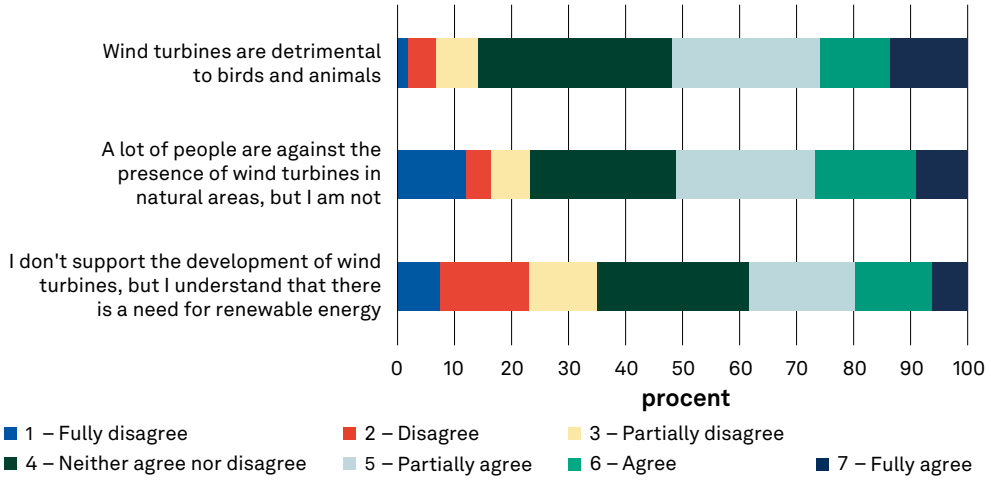


Figure 16. Tourist's perceptions of wind power infrastructure in the natural landscape formed in social context.

Nonetheless, 38 % (n=308) of respondents agree to a varied extent with the statement "I don't support the development of wind turbines, but I understand that there is a need for renewable energy". 35 % of respondents disagree with this statement and 27 % answered neutrally.

Another recurrent occurrence during the qualitative study was tourists talking about what they believed to be the ecological impact of wind turbines on ecosystems. It was apparent that there is a lot of information and misinformation circulating about wind power development. Tourists use this information to form their opinions about wind turbines. We test the confidence of tourists on this complex matter with the statement "wind turbines are detrimental to birds and animals". Overall, 52 % of respondents agree to a varied extent that wind turbines are detrimental to birds and animals, while 34 % give a neutral response and 14 % disagree.

Exploratory factor analysis

We use exploratory factor analysis to examine the underlying structure of opinions on wind power among potential tourists to nature areas[3]. The factor analysis was performed using IBM SPSS Statistics 29 and produced a three-factor solution[4]. The first factor includes nine statements regarding acceptance of wind power both as

[3] Extraction method: principal axis factoring. Rotation method: oblimin. Out of the 28 statements described above, four statements were excluded from the analysis. These include the three statements excluded due to their neutral orientation (i.e., wind turbines are better located offshore than onshore; it is better to concentrate wind turbines in one place, rather than have them spread out; I don't support the development of wind turbines, but I understand that there is a need for renewable energy). Additionally, as discussed in the previous section, the positively oriented statement "wind turbines do not bother me if they are not visible from viewing points" was possibly misunderstood by the respondents. Therefore, it was also excluded from the factor analysis. Furthermore, five statements were consequently removed from the analysis due to low communalities value below the threshold of 0.4 (i.e., wind turbines are a normal feature in the landscape for me because I see them every day; I prefer to see other types of energy infrastructure than wind turbines in natural areas; we need more renewable energy infrastructure to combat climate change; there are no other alternatives than to build more wind turbines to combat the climate crisis; wind turbines should not be placed close to living areas).

[4] The communalities of the remaining 19 statements range between 0.398 to 0.806. Their factor loadings range between 0.493 to 0.931. The produced three-factor solution explains 65 % of the total variance. The overall significance of the correlation matrix was 0.000 with the Barlett Test of Sphericity value of 4,759.602. The Kaiser-Meyer-Olkin (KMO) overall measure of sampling adequacy was 0.953, which is well above recommended thresholds. Therefore, the factor analysis is considered meaningful and may be carried out.

an element of the natural landscape and as a source of renewable and affordable energy. The second factor includes five statements concerning the negative impact of wind power on natural environment, such as its negative impact on the beauty of the landscape, quietness, birds, and animals, and the inappropriateness of locating wind power infrastructure in areas of rich natural heritage. The third factor includes five statements regarding the aesthetical appeal of wind power infrastructure.

The results of the exploratory factor analysis served to group the respondents based on their opinions on wind power. We created what is called a grouping variable consisting of two groups of respondents: one group of respondents who are positive to wind power, and one group who is negative to wind power. To do this, first, the summated scores were calculated separately for each of the three factors, namely, 1) acceptance of wind power, 2) negative impact, and 3) aesthetical appeal. Second, each variable with summated scores was converted to a binary-variable indicating more positive or more negative opinions regarding wind power. Finally, the three binary-variables were used to produce a composite summated score and a composite grouping variable, distinguishing between more positive (n=162) and more negative (n=139) opinions on wind power by these potential tourists.

A chi-square test of independence was performed to examine the relation between the grouping variable and the two behavioural intention variables of revisiting and recommending. In Figure 17, we show our comparison between the two groups in relation to their responses to intentions to visit and intentions to recommend a non-specified destination with wind turbines in nature areas (n=303). The relationship was significant ($p < .001$) for both variables.

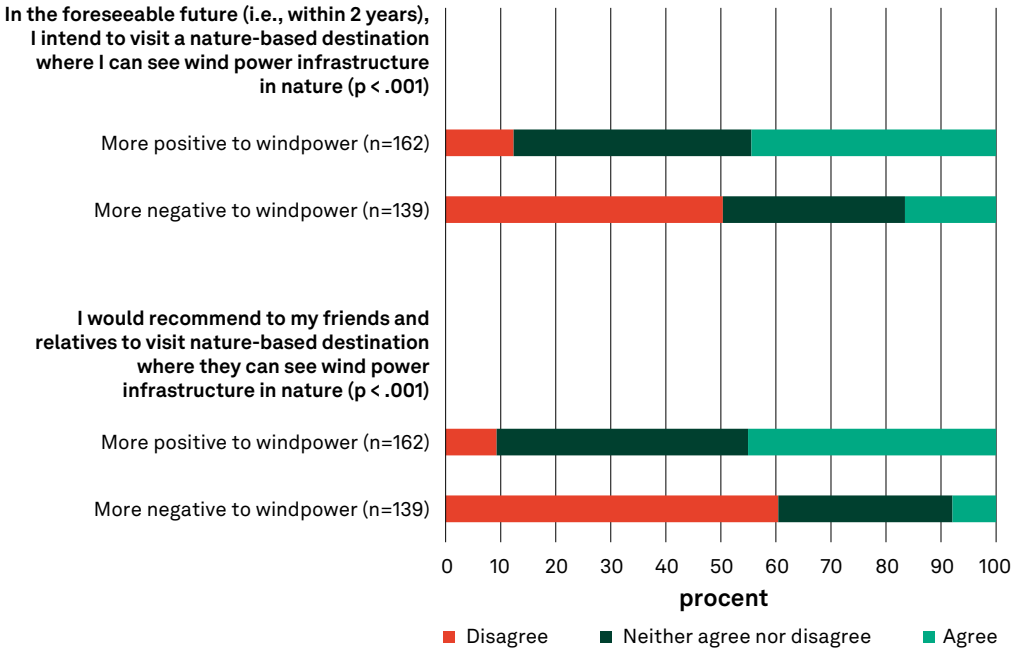


Figure 17. The relationship between opinions on wind power and behavioural intentions (n=303).

In the group more positive to wind power, 45 % of respondents show willingness to a varied extent (from partially agree to completely agree[5]) to visit a destination with wind power infrastructure in nature areas (within 2 years) and 44 % of these respondents are willing to recommend this type of destination to friends and relatives. In contrast, in the group less positive to wind power, only 8 % of respondents are willing to visit a nature-based destination with wind power infrastructure and only 16.5 % of respondents would recommend such a destination to friends and relatives.

4.4.3 Attitudes towards visiting destinations with wind power

To test the survey tool we developed, we measure the attitude towards visiting a destination where there is wind power infrastructure in nature areas by transforming the multiple evaluative semantic differential scales suggested by Ajzen (1991) (with statements such as bad/good, pleasant/unpleasant etc.) into a set of 9 statements. In our survey, every statement started with a standard introduction to the attitude towards visitation and ended with a specific attitudinal aspect. It looked like this:

- Traveling to destinations where you can encounter wind power establishments as part of the natural landscape…
  - … would be enjoyable
  - … would be pleasant
  - … would be fascinating
  - … would be fun
  - … would be relaxing
  - … would be uncomfortable
  - … would be scary
  - … would be unpleasant
  - … would be disturbing.

In Figure 18, we compare the attitude of respondents with more positive opinions on wind power towards encountering wind power infrastructure during their visit to nature areas with the attitude of respondents with more negative opinions on wind power towards this type of encounter. A chi-square test of independence was performed to examine the relation between the grouping variable and the nine attitude variables. The relationship was significant ($p < .001$) for all variables.

Noteworthy, in the group more positive towards wind power, 63 % of respondents agree to a varied extent that visiting a destination where there is wind power infrastructure can be “fascinating”. In the group less positive to wind power, only 12 % of respondents would find visiting a destination where there is wind power infrastructure potentially fascinating. Rather, 60 % of respondents in the group

[5] Prior to using a chi-square test of independence to test the relationships between the two categorical variables, we transform the statements measured on a 1–7-point Likert scale from 1 – fully disagree to 7 – fully agree into new variables with 3 categories. In the newly created categorical variables, the category “disagree” is an aggregation of the options “1 – fully disagree”, “2 – disagree” and “3 – partially disagree” and the category “agree” is an aggregation of the response options “5 – partially agree”, “6 – agree” and “7 – fully agree”.

negative towards wind power agree to a varied extent that visit to such destinations would be "disturbing". Only 16 % of respondents in the group more positive towards wind power answered that they would find this visit disturbing.

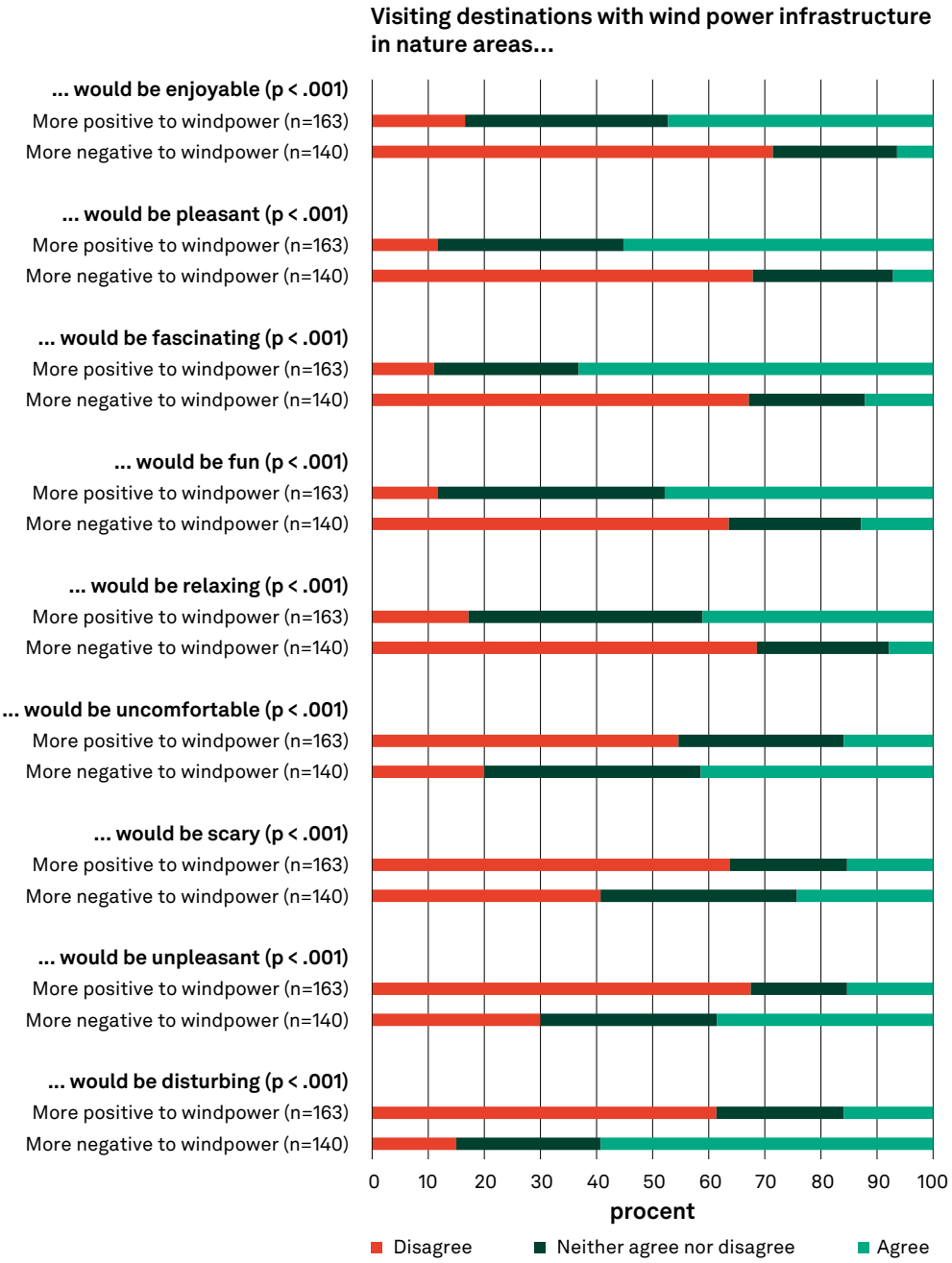


Figure 18. The relationship between opinions on wind power and attitudes towards visiting destinations with wind power infrastructure in nature areas (n=303).

4.4.4 Outdoors activities

In 2018, Statistics Sweden (SCB) conducted a national survey on Swede's outdoor recreation activities. The results were published in a report written by researchers at Mid-Sweden University (see Fredman et al., 2018). In our survey, we apply the same question used in the report to establish the outdoor tourism profile of our respondents. Their profile is determined depending on their participation in outdoor activities performed during a period of 12 months. The question is formulated as follows: "Approximately how many times have you engaged in the following outdoor activities during your leisure time in the past 12 months?" Our list of popular outdoor activities includes hiking and tent camping. These two most common activities are integrated in the short film that we present in the survey to illustrate a typical NBT experience in areas where there is wind power infrastructure (see section 4.1).

Based on frequency of participation (i.e., from the categories "never", "1–5 times", "6–20 times", "21–60 times", "more than 60 times"), a grouping variable was created to address the fifth proposition derived from the analysis of the qualitative data, namely "**Tourists do not notice wind turbines in natural landscapes when they are involved in outdoors activities**". In this grouping variable, we have two groups: one with respondents more involved in hiking and tent camping, and one with respondents less involved in hiking and tent camping. The frequency of participation of the respondents in the activities of hiking and tent camping are illustrated in figure 19.

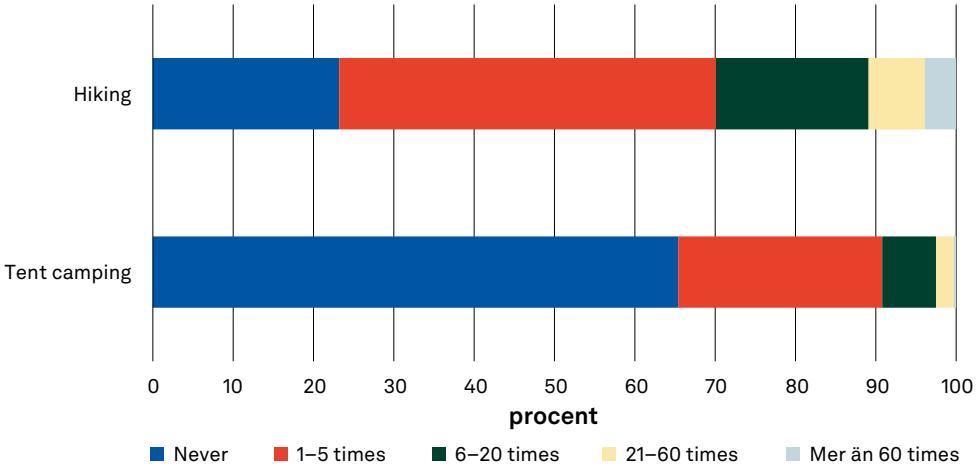


Figure 19. Answers to the question "how many times have you participated in the following outdoor leisure activities during the past 12 months"? (n=358).

In Figure 20, we compare the two groups in relation to their opinions on wind power. We see that the group of respondents with higher participation in hiking and tent camping have significantly more positive opinions on wind power compared with the group with lower participation in these activities. A Chi-square test of independence indicates that the relationship is statistically significant ($p < .05$) for seven opinion statements. The results indicate that respondents with a higher degree of participation in hiking and tent camping demonstrate a lower degree of potential disturbance from wind power infrastructure. They also show a higher degree of appreciation towards wind power infrastructure, both for its aesthetical appeal and in relation to renewable energy production.

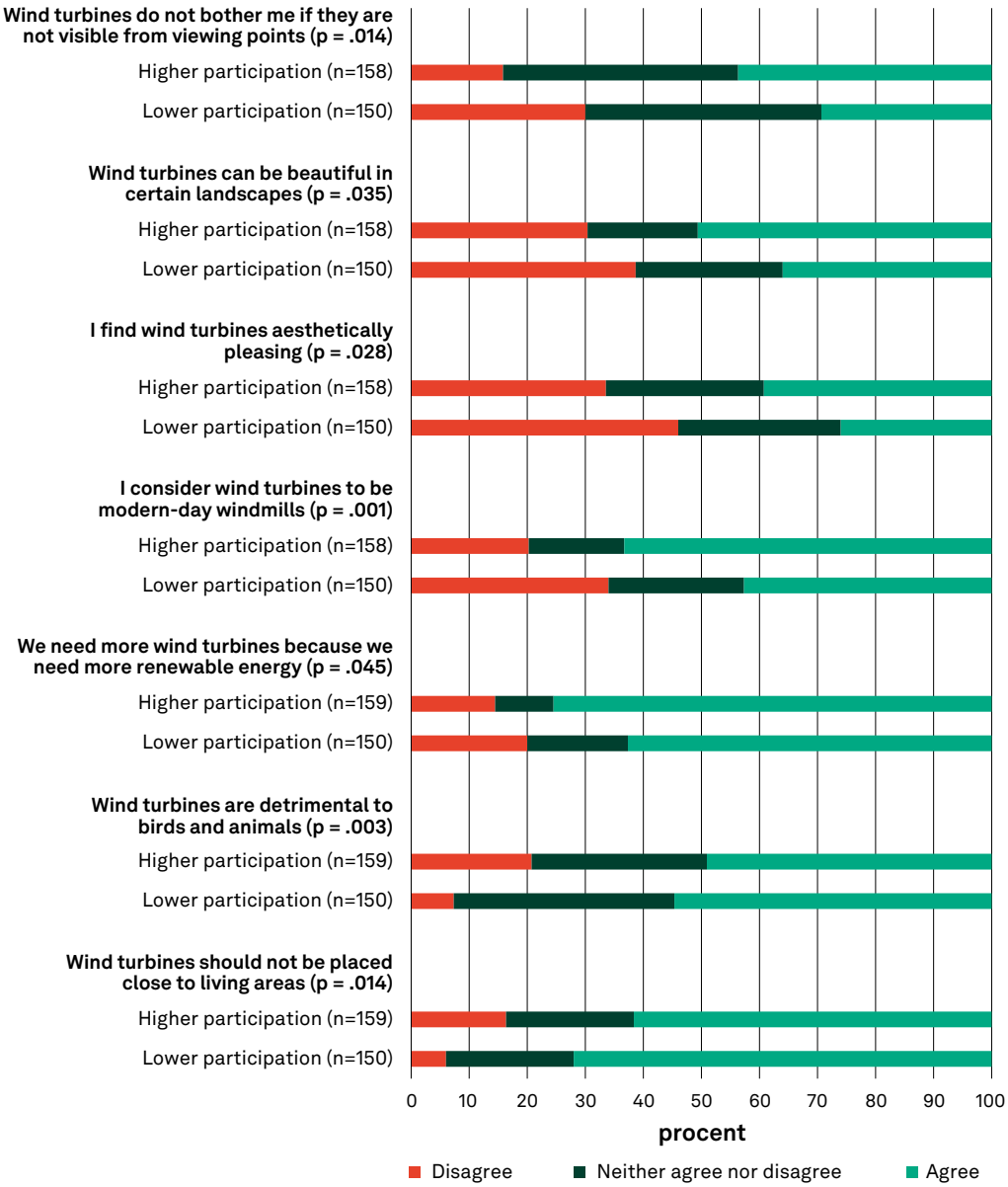


Figure 20. Comparison of opinions on wind power among respondents less and those more involved in hiking and tent camping (n=303).

Similarly, in Figure 21, we compare the two groups by their attitude towards visiting destinations with wind power infrastructure in nature areas. A Chi-square test of independence indicates that the relationship was statistically significant ($p < .05$) for four variables indicating positive attitude.

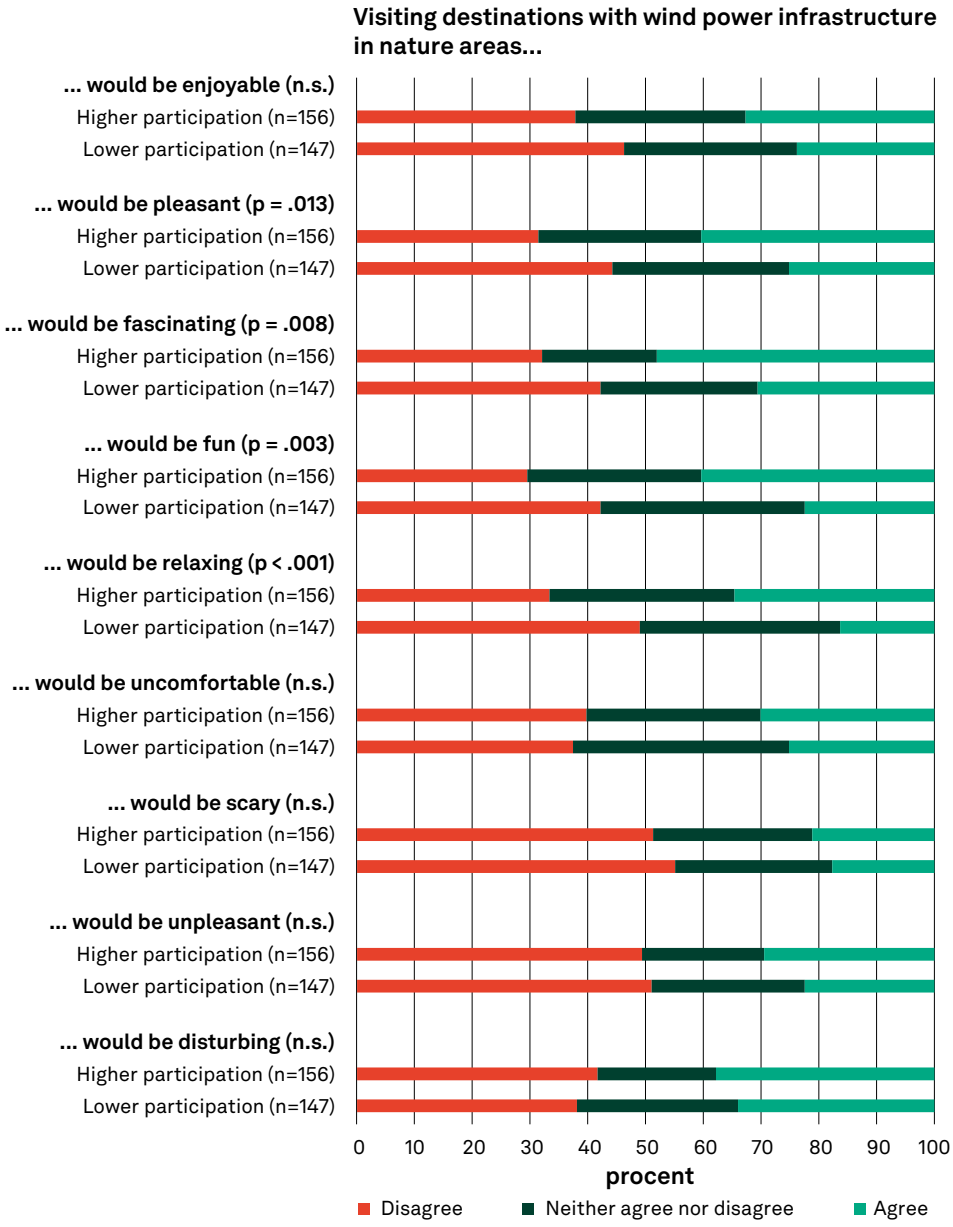


Figure 21. The relationship between participation in hiking and tent camping and attitudes towards visiting destinations with wind power infrastructure in nature areas (n=303).

In the group with a higher degree of participation in hiking and tent camping, 48 % of respondents agree to a varied extent that visiting a destination where there is wind power infrastructure can be “fascinating” (compared to 31 % who agreed to a varied extent in the group with a lower degree of participation in respective activities).

Finally, in Figure 22, we compare the behavioural intentions of the two groups. A chi-square test of independence indicates that the relationship was significant ($p < .001$) for both variables. In the group with a higher degree of participation in hiking and tent camping, 44 % of respondents are willing to a varied extent to visit a destination where there is wind power infrastructure within 2 years. 39 % of them are willing to recommend this destination to friends and relatives. This is compared to 18.5 % and 16 %, respectively, in the group with a lower degree of participation.

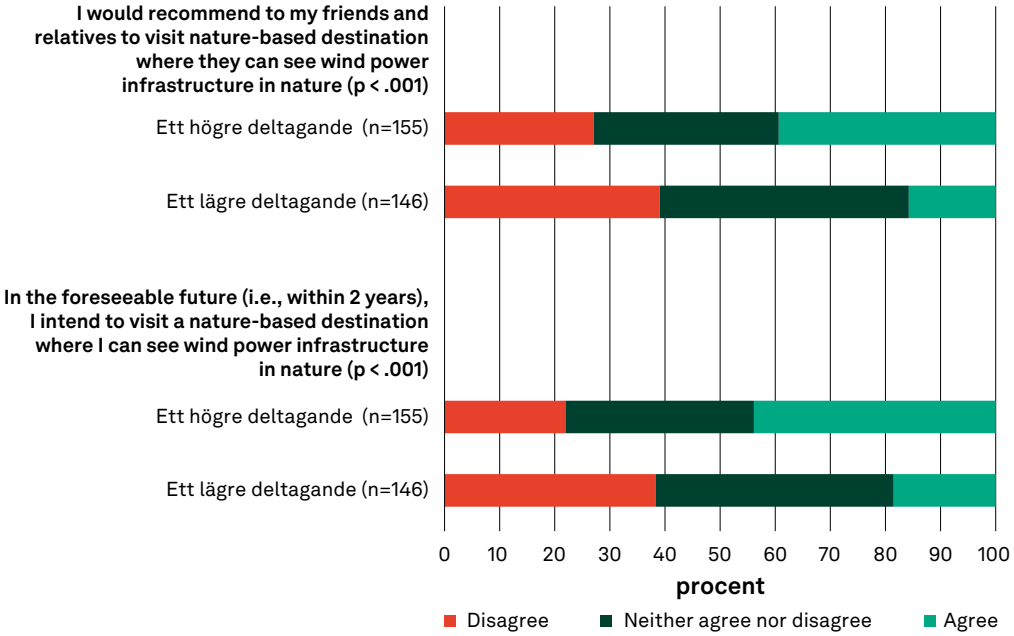


Figure 22. The relationship between participation in hiking and tent camping and behavioural intentions towards visiting destinations with wind power infrastructure in nature areas (n=303).

4.4.5 Emotions and decision to visit a destination with wind power

In our survey, we use statements tested by Onwezen et al. (2013) to measure anticipated pride and guilt. We had to modify these statements somewhat to make them applicable to the context of wind-power infrastructure in nature areas. We introduce these statements in relation to the following two questions:

- Imagine that you are planning your next visit to a nature-based destination and decide to travel to a destination where you can see wind power infrastructure in the natural landscape. How would you feel?
  - I would feel confident.
  - I would feel worthwhile.
  - I would feel proud.
- Imagine that you are planning your next visit to a nature-based destination and decide NOT to travel to a specific destination because there you can see wind power infrastructure in the natural landscape. How would you feel?
  - I would feel guilty.
  - I would feel ashamed.
  - I would feel remorseful.

Figure 23 shows the results of responses to statements regarding the anticipated emotions of pride and guilt of deciding to visit or not to visit a destination where there is wind power infrastructure in nature areas (n=301). In total, 28–38 % agree to a varied extent that they would experience some aspect of pride (i.e., feeling proud, worthwhile, confident) if they decided to travel to a destination where there is wind power in nature areas. In contrast, 14–18 % would feel guilty, ashamed, or remorseful if they decided not to travel to a destination because there is wind power infrastructure there.

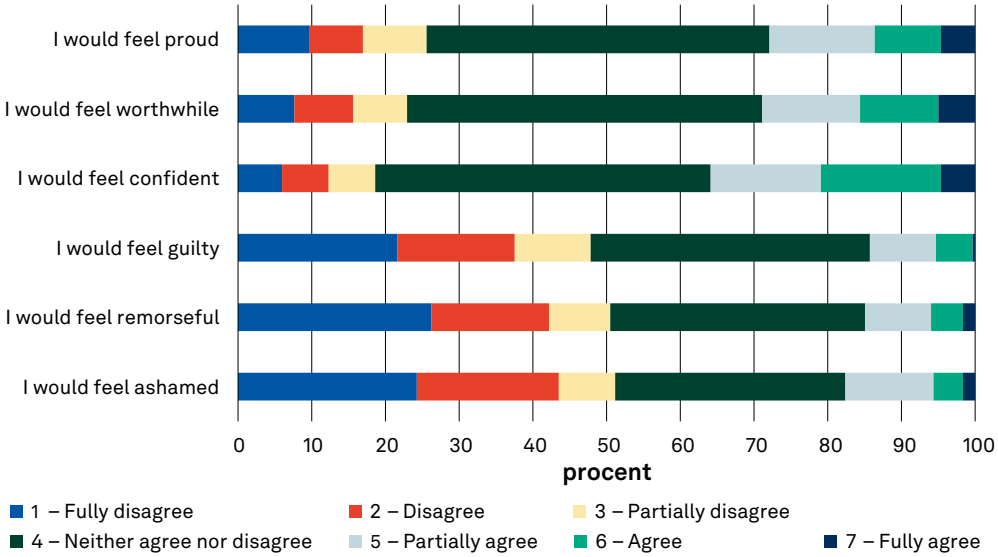


Figure 23. Anticipated emotions associated with the decision to visit a destination where there is wind power infrastructure in nature areas (n=301).

Figure 24 compares various aspects of anticipated emotion of pride between the group of respondents with more positive opinions regarding wind power and the group with more negative opinions (n=301). This grouping variable was built based on responses to statements about wind power and used in previous sections of the analysis. A chi-square test of independence was performed to examine the relationship between opinions regarding wind power and anticipated positive emotion of pride. The relationship was significant ($p < .001$) for all variables.

Remarkably, 46 % of respondents in the group with more positive opinions on wind power agree to a varied extent that they would feel proud if they decided to travel to a destination with wind power infrastructure in nature areas. In comparison, only 7 % of respondents in the group with more negative opinions on wind power would feel proud of such a decision. Conversely, the proportion of respondents who disagree to a varied extent with the statement is 9 % in the group with more positive opinions and 45 % in the group with more negative opinions.

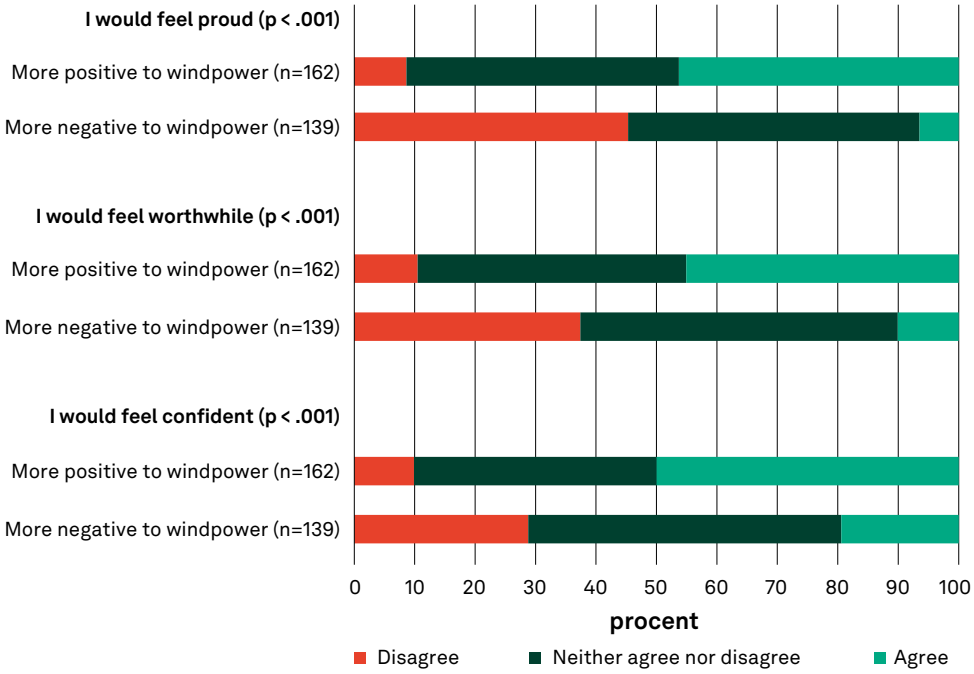


Figure 24. The relationship between opinions on wind power and the anticipated positive emotion of pride (n=301).

In Figure 25, we see the relationship between opinions on wind power and anticipated negative emotions of guilt (n=301). The chi-square test of independence indicates that the relationship was significant (p < .001) for all variables.

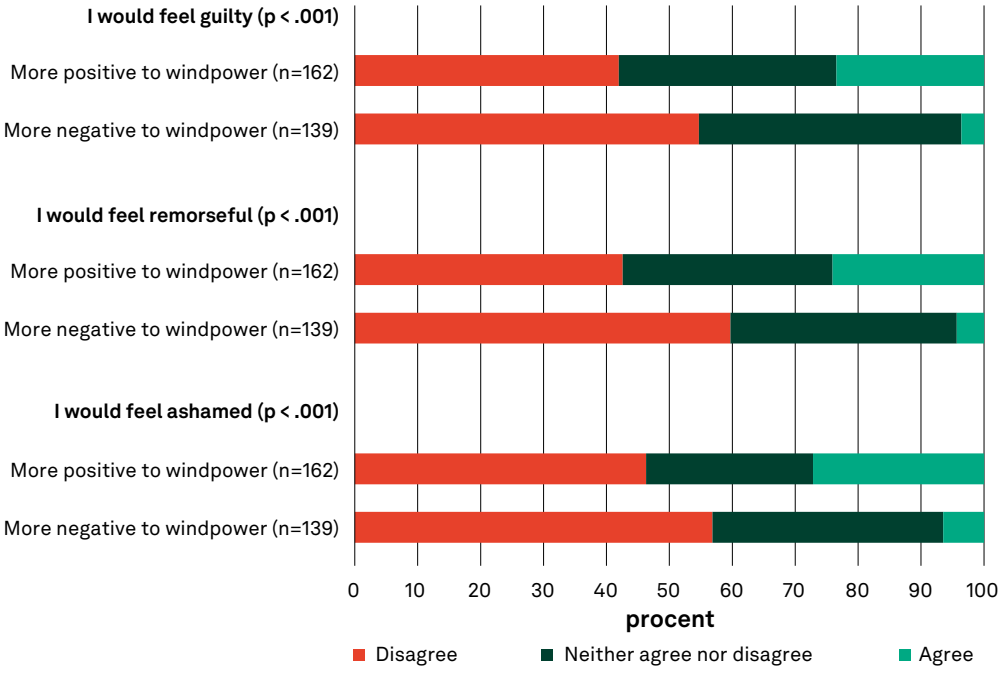


Figure 25. The relationship between opinions on wind power and the anticipated negative emotion of guilt (n=301).

Overall, 24 % of respondents with more positive opinions on wind power agree to a varied extent that they would feel guilty if they decided not to travel to a destination because they might see wind power infrastructure there, while 4 % of respondents with more negative opinions on wind power agree to a varied extent with the statement. Meanwhile, 42 % of respondents with more positive opinions on wind power and 55 % of respondents with more negative opinions on wind power disagree with the statement that they would feel guilty if they decided not to travel to a destination because they might see wind power infrastructure there.

If we compare the semantically opposite statements "I would feel proud" (asked in relation to the question "if I decided to travel to a nature-based destination where there is wind power") and "I would feel guilty" (asked in relation to the question "if I decided not to travel to a nature-based destination where there is wind power"), we see that the proportion of respondents who agree that they would feel proud for their decision is almost twice higher than the proportion of those who would feel guilt for their decision. When it comes to the relation between anticipated emotions and opinions on wind power, results are as follows:

- In the group with more positive opinions on wind power, 46 % of respondents agree to a varied extent that they would feel proud, compared to 24 % who agree that they would feel guilty.
- In the group with more negative opinions on wind power, 7 % of respondents agree to a varied extent that they would feel proud, compared to 4 % who agree that they would feel guilty.
- For the group with more negative opinions on wind power, 9 % disagree that they would feel proud, compared to 42 % who disagree that they would feel guilty.
- In the group with more positive opinions, 45 % disagree to a varied extent that they would feel proud and 55 % disagree that they would feel guilty.

The results above highlight the relevance of positive emotions in pro-environmental behaviour. This finding supports prior research on the role of anticipated emotions of pride and guilt in influencing pro-environmental consumption and demonstrates the applicability of the statements that we modified for the context of tourism consumption in areas impacted by wind power development.

Moreover, as shown in Figure 26, we compared anticipated emotions of pride and guilt among the respondents with higher and those with lower degree of participation in hiking and tent camping (i.e., the outdoor activities visualised in the short film included in the survey). The chi-square test of independence indicates that the relationship was significant ($p < .05$) for five variables out of six and not significant for one variable used to measure the negative emotion of guilt.

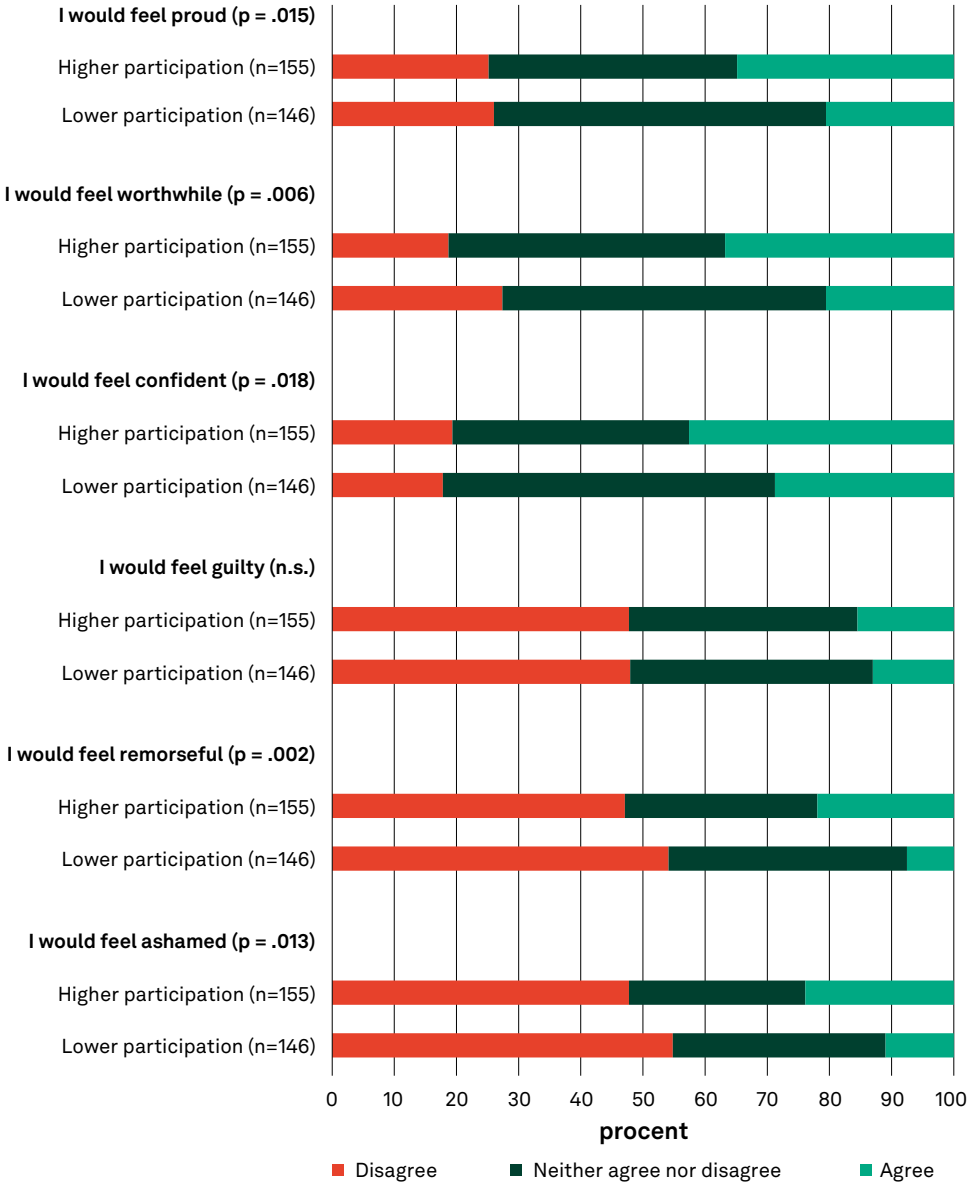


Figure 26. The relationship between participation in hiking and tent camping and the anticipated positive and negative emotions of pride and guilt regarding the decision to visit a destination where there is wind power infrastructure in nature areas (n=301).

In the group of respondents with higher participation in hiking and tent camping, 35 % of them agree to a varied extent that they would feel proud if they decided to travel to a destination where there is wind power in nature areas. This is compared to 21 % of respondents in the group with lower participation in these activities. In the group of respondents with higher participation in outdoor activities, 24 % of them admit that they might feel ashamed if they decided not to travel to a destination because there was wind power there. 8 % of the respondents in the group with a lower degree of participation in these activities would feel ashamed of this decision.

As Onwezen et al. (2013) demonstrated, attitude towards pro-environmental behaviour has a direct impact on anticipated emotions of pride and guilt. To test this relationship in the context of attitudes towards visiting a destination where there is wind power infrastructure in nature areas, we created two grouping variables based on the responses to statements reflecting positive and negative attitudes towards visiting a destination where there is wind power infrastructure. We divided the groups as follows:

- The first grouping variable consists of three groups of respondents: 1) those showing the most positive attitude, 2) those showing neutral attitude, and 3) those showing the least positive attitude. These three groups were built by transforming the summated scales for the variables "enjoyable", "pleasant", "fascinating", "fun" and "relaxing".
- The second grouping variable consists of three groups of respondents: 1) those with most negative attitude, 2) those with neutral attitude, and 3) those with least negative attitude. These three groups were built by transforming the summated scales for the variables "uncomfortable", "scary", "unpleasant" and "disturbing".

We created two additional grouping variables based on the responses to statements reflecting anticipated pride and guilt. We divided the groups as follows:

- The first grouping variable consists of three groups of respondents: 1) those showing a low level of pride, 2) those showing a medium level of pride, and 3) those showing a high level of pride. These three groups were built by transforming the summated scales for the variables "confident", "worthwhile" and "proud".
- The second grouping variable consists of three groups of respondents: 1) those showing a low level of guilt, 2) those showing a medium level of guilt, and 3) those showing a higher level of guilt. These three groups were built by transforming the summated scales for the variables "guilty", "ashamed" and "remorseful".

Figure 27 shows the relationship between positive attitude toward visiting a destination where there is wind power infrastructure in nature areas and levels of pride (statistically significant at $p < .001$ level). Among the respondents with the most positive attitude towards visiting, 71 % report a high level of anticipated pride associated with the decision to visit the destination with wind power infrastructure and 11 % report a low level of anticipated pride. Among the respondents with the least positive attitude, 11 % report a high level and 62 % report a low level of anticipated pride.

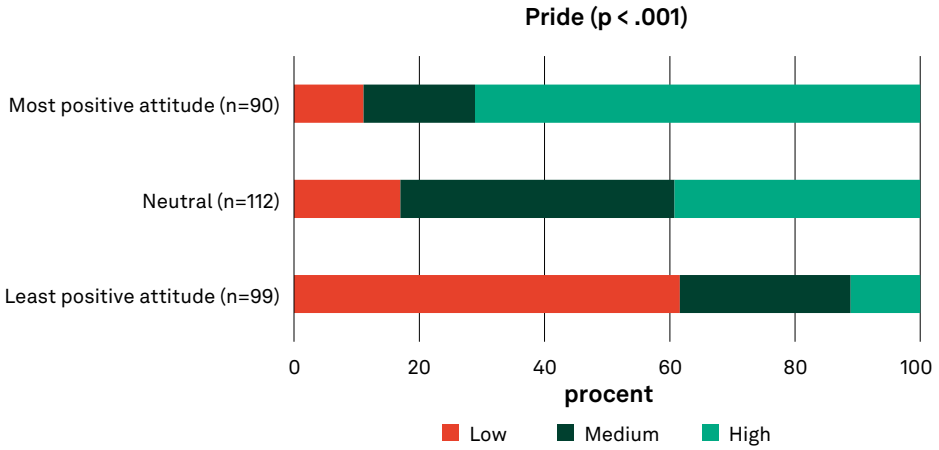


Figure 27. The relationship between the positive attitude towards visiting a destination where there is wind power infrastructure in nature areas and the level of anticipated pride (n=301).

Furthermore, as we show in Figure 28, 58 % of the respondents showing the most positive attitude towards visiting a destination with wind power infrastructure in nature areas report high levels of anticipated guilt if they decide not to visit such a destination. In the group with the least positive attitude, the proportion of respondents feeling guilt is 29 %.

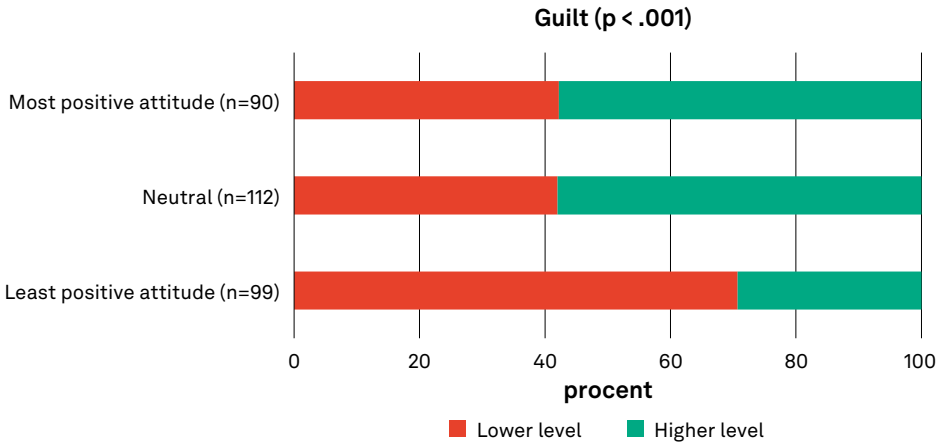


Figure 28. The relationship between the positive attitude towards visiting a destination where there is wind power infrastructure in nature areas and the level of anticipated guilt (n=301).

Similarly, as shown with Figure 29, 31 % of respondents in the group with the most negative attitude towards visiting a destination where there is wind power infrastructure in nature areas report high level of anticipated pride if they decide not to visit such destination. In comparison, 56 % of the respondents in the group with the least negative attitude would feel pride.

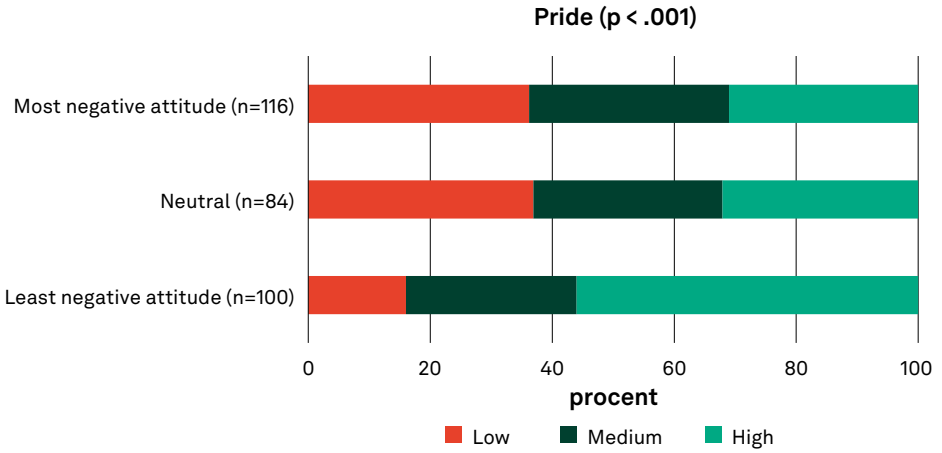


Figure 29. The relationship between the negative attitude towards visiting a destination where there is wind power infrastructure in nature areas and the level of anticipated pride (n=301).

However, the results shown on Figure 30 are difficult to interpret. Rather, they indicate that the group with most negative attitude towards visiting a destination where there is wind power infrastructure in nature areas also reports a higher level of anticipated guilt for deciding not to visit tourism destination because there is wind power infrastructure (59 %), compared with the group with the least negative attitude (33 %). This contradiction in our results is nonetheless in line with results of prior research (e.g., Zhu et al. 2022), which indicates the contradictory role of anticipated guilt in pro-environmental behaviour.

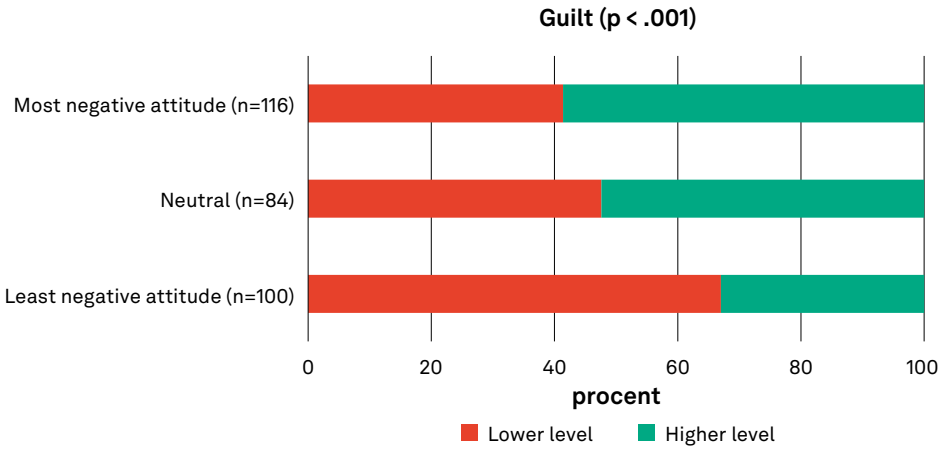


Figure 30. The relationship between the negative attitude towards visiting a destination where there is wind power infrastructure in nature areas and the level of anticipated guilt (n=301).

Considering prior research supporting the direct effect of anticipated emotions on pro-environmental behaviour (e.g., Qiu et al., 2022, Alsuwaidi et al., 2022, Shipley et al., 2023), we tested the relationship between anticipated emotions and behavioural intentions to visit or recommend a destination where there is wind power infrastructure in nature areas.

Figure 31 illustrates the relationship between behavioural intentions and anticipated pride ($p < .001$). In the group with the high level of anticipated pride associated with the decision to visit a destination where there is wind power in nature areas, at least 50 % of respondents partially agree that they would visit such destination, while 12 % disagree. In the group with the low level of anticipated pride, 18 % of respondents agree to a varied extent and 51 % disagree that they would visit such a destination soon (within nearest two years).

At least 55 % of the respondents in the group with a high level of anticipated pride partially agree that they would be willing to recommend to friends and relative that they visit a destination where there is wind power infrastructure in nature. 11 % of the respondents in the group with the high level of anticipated pride disagree with the statement. In the group with a low level of anticipated pride, the proportions are 10 % who agree and 66 % who disagree.

Finally, we see in Figure 32 the relationship between anticipated guilt and behavioural intentions towards a destination where there is wind power infrastructure in nature areas ($p < .001$). 39 % of respondents in the group with a high level of anticipated guilt agree to a varied extent that they would intend to visit a destination in nature areas where there is wind power infrastructure. Meanwhile, 25 % of respondents in the group with a low level of anticipated guilt agree that they would intend to visit a destination where there is wind power infrastructure in nature. The proportion of respondents who disagree with the statement is 19 % for those with a high level of anticipated guilt and 41 % for those with a low level of anticipated guilt. 32 % of respondents with higher level of anticipated guilt at least partially agree that they would encourage friends and relatives to visit a destination where there is wind power infrastructure (in comparison with 24 % in the group with lower level of anticipated guilt who would). 22 % of respondents in the group with a higher level of guilt and 43 % of respondents in the group with a lower level of guilt disagree that they would encourage others to visit such a destination.

Overall, the results demonstrate the importance and applicability statements used to measure anticipated pride and guilt in relation to attitudes and behavioural intention in the context of destination where there is wind power infrastructure in nature.

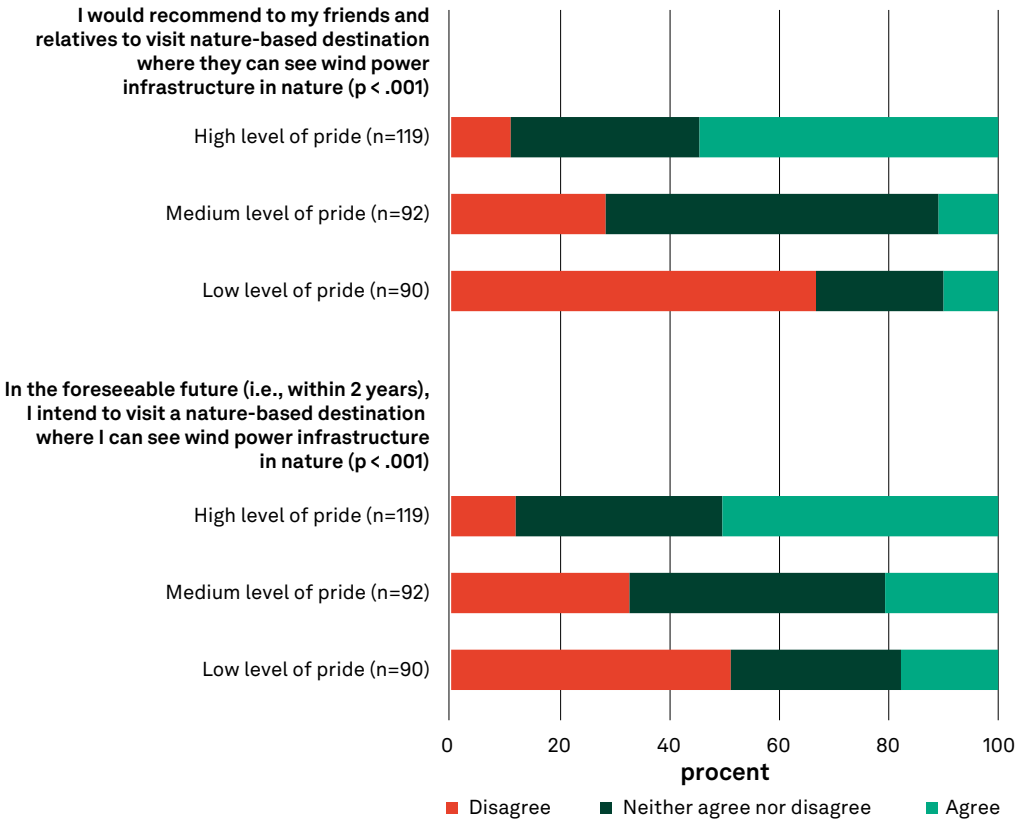


Figure 31. The relationship between anticipated pride and behavioural intentions towards destination where there is wind power infrastructure in nature areas (n=300).

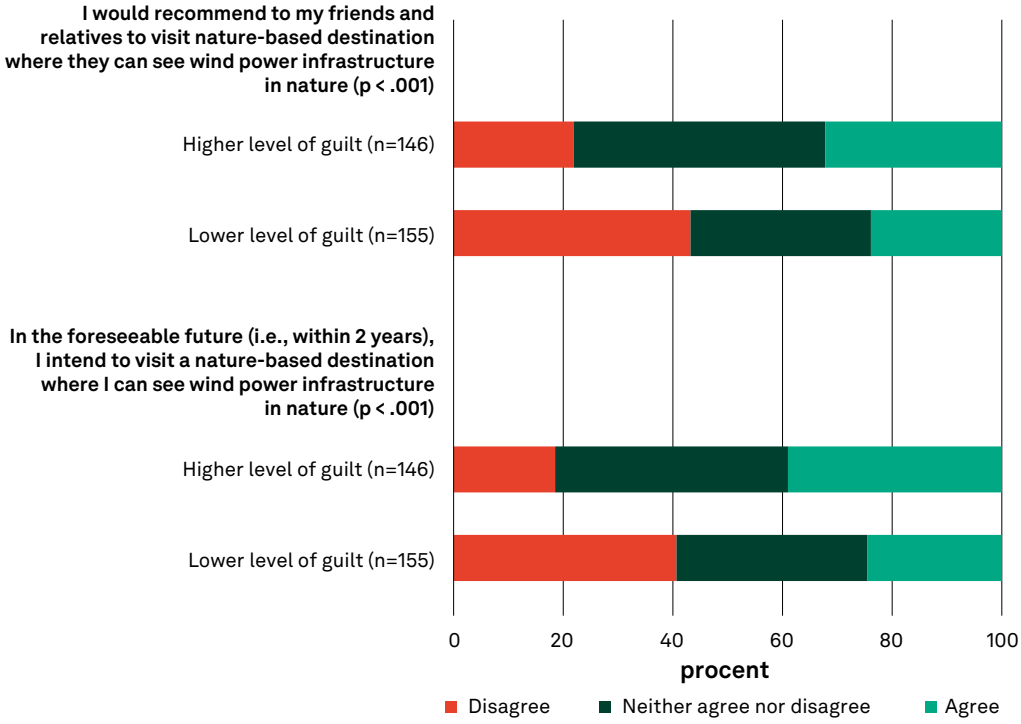


Figure 32. The relationship between anticipated guilt and behavioural intentions towards destination where there is wind power infrastructure in nature areas (n=301).

4.4.6 Perceived value of tourism experience in nature areas

In this study, we apply the eudemonic value scale to measure the spiritual dimension of the tourism experience in nature areas (Lengieza et al., 2019). By spiritual dimension, we mean activities related to self-reflection such as thinking deeply about the meaning of life or one's purpose in life. Researchers commonly use the eudemonic value scale to measure the sense of purpose in life and self-reflection that people experience when they practice certain activities. In our survey, we want to additionally consider tourist appreciation of destination sustainability. Therefore, to measure sustainable destination value, we adapt and further develop the altruistic value scale typically used to measure the ethics dimension of perceived value, as has been done in previous studies (e.g., Sánchez-Fernández et al., 2009; Gallarza et al., 2017; Ahn and Thomas, 2020).

In the survey, we asked respondents to evaluate 31 statements about their perceived value of tourism experience in nature areas. They had to evaluate these statements immediately after having watched a short film narrating their participation in a tourism experience. The experience consisted of a two-day hiking trip that included various encounters with wind power infrastructure in nature. We explained to the respondents that the statements about their perceived value of an experience had to be answered in response to having watched the video. We had the instructions: "after you have watched the presentation about the hiking trip, please, evaluate the statements below". Every statement started with a standard introduction to the perceived benefit of the experience (i.e., "during my hiking trip I have fulfilled my expectations/needs…") and each ended with a specific aspect of the perceived value of the experience, such as beauty (i.e., "…to experience the beauty of nature", "…to see spectacular views") and connection to nature (i.e., "… to experience connection with nature and wild places"), etc. 15 statements were included to evaluate emotional and epistemic benefits, 11 to evaluate sustainable destination value and 5 to evaluate spirituality.

We used exploratory factor analysis[6] to understand the underlying structure of the perceived value of experiencing nature areas where there is wind power infrastructure. An analysis of the statements is presented in Table 5. Each statement is grouped with its factor for the analysis (i.e., 1) emotional and epistemic, 2) sustainable destination, 3) spirituality). In the figure, we show the comparison of mean values of perceived value statements between the respondents with more negative opinions on wind power and those with more positive opinions on wind power. The independent sample t-test demonstrates that, apart from two value statements in the factor 1 "emotional and epistemic" and one statement in the factor 3 "spirituality", the means are significantly higher ($p < .005$) among the respondents with more positive opinions on wind power compared to the group of respondents with less positive opinions.

[6] Extraction method: principal axis factoring. Rotation method: oblimin. Out of 31 initial statements, two were removed due to low factor loadings (below 0.4), including "to get a greater awareness of local culture and heritage" and "to have a story to tell". The communalities of the remaining 29 statements range between 0.565 to 0.854. Their factor loadings range between 0.501 to 0.977. The produced three-factor solution explains 75 % of the total variance. The overall significance of the correlation matrix was 0.000 with the Barlett Test of Sphericity value of 11,201.476. The Kaiser-Meyer-Olkin (KMO) overall measure of sampling adequacy was 0.963, which is well above recommended thresholds. Therefore, the factor analysis is considered meaningful and may be carried out.

Table 5. Relationship between the opinions on wind power and perceived value of tourism experience in nature areas where there is wind power infrastructure

Variables	more negative to wind power (n=143)		more positive to wind power (n=165)		Sig.
	Mean	Std. Dev.	Mean	Std. Dev.	
Factor 1. Emotional and epistemic					
to escape from my daily routines and encounter something different from everyday life	5.5	1.373	6.0	1.042	<.001
to experience peace and quietness	5.3	1.425	6.0	0.996	<.001
to feel good, to feel happy	5.5	1.31	5.9	1.069	.002
to experience a feeling of freedom	5.4	1.391	5.9	1.022	<.001
to experience connection with nature and wild places	5.3	1.392	5.9	1.039	<.001
to relax mentally	5.4	1.485	5.9	1.045	<.001
to find new strength and energy	5.5	1.346	5.9	0.997	<.001
to be able to slow down and do nothing	5.5	1.351	5.9	1.093	<.001
to train and exercise, use my body in a comprehensive way and challenge my physical abilities	5.6	1.308	5.8	1.115	n.s.
to discover new places and things	5.5	1.203	5.8	1.053	.004
to experience the beauty of nature, to see spectacular views	5.1	1.423	5.8	1.052	<.001
to learn about nature	5.1	1.508	5.7	1.048	<.001
to perform demanding physical activities in nature	5.5	1.294	5.7	1.148	n.s.
Factor 2. Sustainable destination value					
to be a responsible tourist	5.0	1.477	5.7	1.133	<.001
to have sustainable tourism experience	4.9	1.453	5.7	1.04	<.001
to travel to the place, which acts responsibly towards the environment	4.7	1.468	5.5	1.161	<.001
to travel to the place, which acts responsibly towards the local community development	4.6	1.475	5.5	1.182	<.001
to travel to the place, which is coherent with my ethical and moral values	4.6	1.49	5.5	1.197	<.001
to be an ethical tourist	4.9	1.348	5.5	1.203	<.001
to travel to the place, which actively engages in combating climate change	4.5	1.578	5.4	1.24	<.001
to fulfill my moral obligation to minimize my environmental impact	4.5	1.591	5.4	1.304	<.001
to fulfill my moral obligation to minimize the negative impact of my visitation on local communities	4.6	1.518	5.4	1.337	<.001
to fulfill my moral obligation to contribute to the development of local communities, which I visit as a tourist	4.5	1.551	5.3	1.362	<.001
to fulfill my moral obligation to do what I can to combat climate change	4.4	1.612	5.3	1.385	<.001
Factor 3. Spirituality					
to experience times where I could self-reflect	5.4	1.174	5.8	1.044	.003
to think deeply about topics I care about	5.1	1.24	5.4	1.209	n.s.
to think about the meaning of life	4.7	1.501	5.2	1.351	.002
to get the sense of purpose in my life	4.7	1.477	5.1	1.235	.003
to think about my true potentials	4.6	1.396	5.0	1.237	.005

The means for the 13 statements under factor 1 (i.e., emotional and epistemic value) vary from 5.68 to 6.0 (on a scale from 1 – fully disagree to 7 – fully agree) among the respondents with more positive opinions on wind power. Among the respondents in the group with lower opinions on wind power, the means range from 5.1 to 5.64. As for the second factor on sustainable destination value with its 10 statements, the means vary from 5.33 to 5.7 among the respondents in the group with more positive opinions on wind power. Meanwhile, they vary from 4.43 to 5.01 among the group of respondents with less positive opinions on wind power. As for the factor of spirituality with its five statements, the means range from 5.01 to 5.75 among the respondents in the group with more positive opinions on wind power, and they vary from 4.58 to 5.38 among those with less positive opinions.

Three grouping variables were produced based on summated scores for each factor. The grouping variables for each factor reflect the level of value scores for the perceived value of the tourism experience in nature areas, meaning: 1) the respondents with low value scores, 2) those with medium value scores, and 3) those with high value scores. We used these three grouping variables for the emotional and epistemic, sustainability and spirituality dimensions of perceived experience value to test the relationship between the perceived value of experience in areas where there is wind power infrastructure in nature areas and behavioral intentions to visit such areas or to recommend them to relatives and friends. Figure 33 illustrates the relationship between the three grouping variables for the dimensions of perceived experience value and the behavioral intentions to visit a destination.

The relationship between factor 1 “emotional and epistemic” and the intention to visit a destination where there is wind power infrastructure is not statistically significant. The relationships are statistically significant between intentions to visit and the other two factors (i.e., factor 2 ($p < .001$) and factor 3 ($p = .006$)). We see that:

- 37 % of respondents who scored high on factor 2 “sustainable destination value” and 36 % of those with medium scores on this specific value express an intention to visit a destination where there is wind power infrastructure in nature areas.
- in the group with low scores on factor 2 “sustainable destination value”, only 22 % of respondents express an intention to visit a destination where there is wind power infrastructure in nature areas.
- 39 % of respondents who scored high on factor 3 “spirituality” express an intention to visit a destination where there is wind power infrastructure in nature areas. 34 % of those who gave a medium value to spirituality and 22 % of those who gave it a low value express an intention to visit such destination.

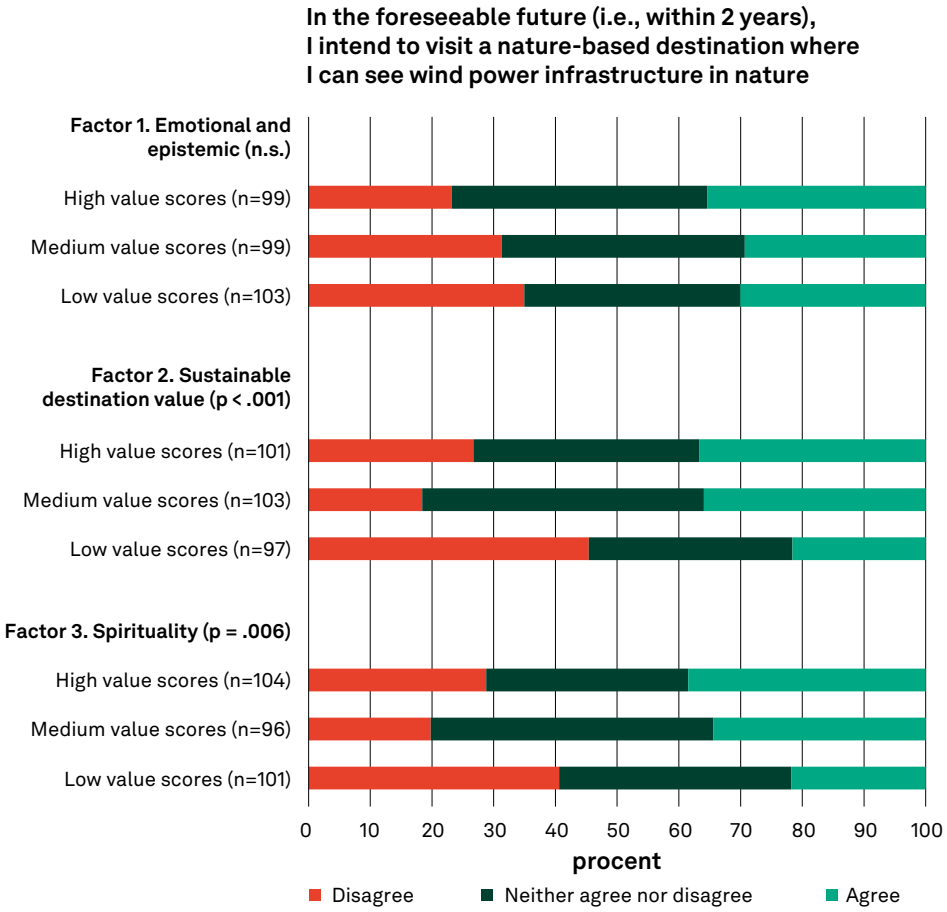


Figure 33. Relationship between perceived value of tourism experience in nature areas and intention to visit a destination where there is wind power infrastructure.

Figure 34 shows the relationship between the perceived value of a tourism experience in nature areas and the intention to recommend a destination where there is wind power infrastructure. The relationship is statistically significant for all three factors related to the perceived value of the experience. 38 % of the respondents who scored highly on factor 1 "emotional and epistemic value" express the intention to recommend others to visit a destination where there is wind power in nature areas. Meanwhile, 23 % of those who gave a medium score to emotional and epistemic value and 22 % of those who gave a low score to emotional and epistemic value express the intention to recommend others to visit a destination where there is wind power in nature areas.

43 % of the respondents who scored highly on factor 2 "sustainable destination value" express the intention to recommend others to visit a destination where there is wind power in nature areas. In comparison, 29 % of those who gave a medium score to sustainable destination value and 11 % of those who gave a low score to sustainable destination value express the intention to recommend others to visit a destination where there is wind power in nature areas. In contrast, 55 % of respondents in the group with low value scores for the sustainable destination indicate that they do not intend to recommend others to visit a destination where there is wind power infrastructure. In comparison, 21 % of respondents in the groups who gave a medium score to sustainable destination value and 24 % of respondents in the

groups who gave a high score to sustainable destination value do not intend to recommend others to visit a destination where there is wind power infrastructure in nature areas.

Finally, 41 % of respondents in the group who scored factor 3 "spirituality" highly are likely to recommend others to visit a destination where there is wind power infrastructure in nature areas. In comparison, 27 % of respondents in the groups who gave a medium score to spirituality and 15 % of respondents in the groups who gave a low score to spirituality intend to recommend others to visit a destination where there is wind power infrastructure in nature areas.

Based on our interpretation of the results, we judge the perceived value scale (which includes the dimensions of emotional and epistemic value, spirituality, and sustainability destination value) applicable to understanding the perceived value of tourism experience at destinations where tourists can encounter wind power infrastructure in nature areas in different contexts and at different phases of their stay.

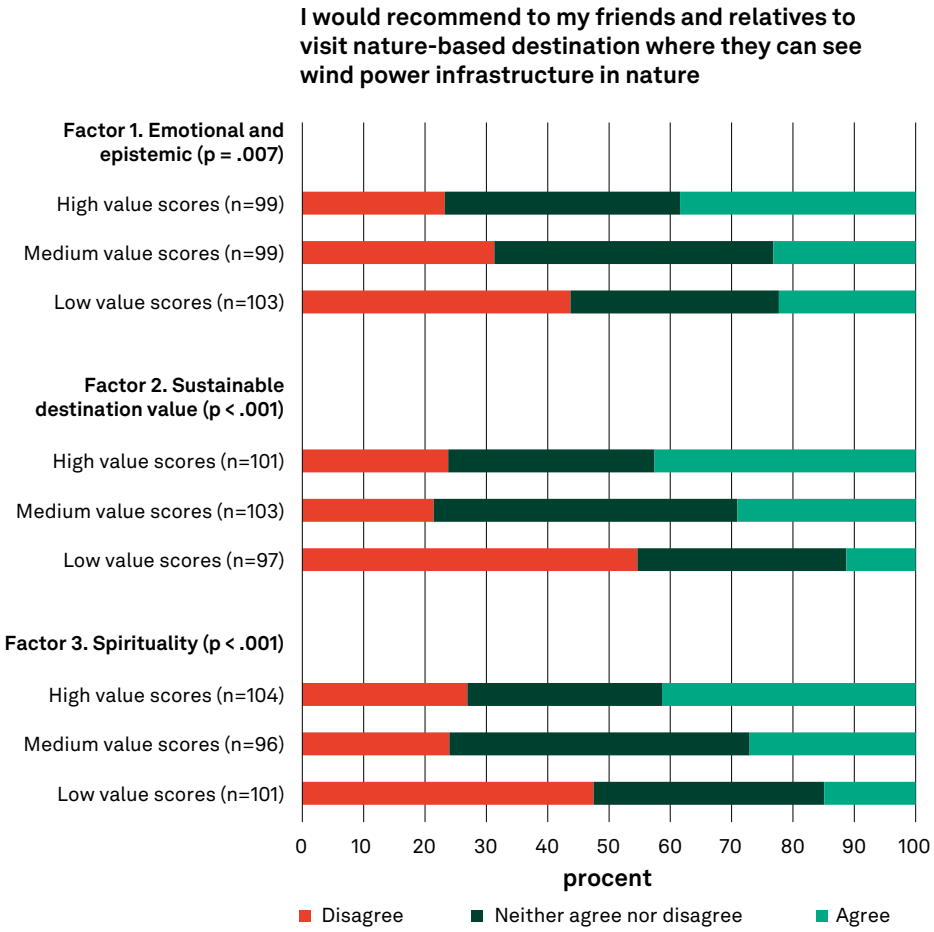


Figure 34. Relationship between perceived value of tourism experience in nature areas and intention to recommend a destination where there is wind power infrastructure.

4.4.7 Wind power facilities as tourist attractions

Section 2.3 in the literature review outlines research on the emerging niche market of energy tourism. This new market is largely fueled by a growing interest in green tourism experience. In our survey, we assess potential interest and attitude towards visiting a wind power facility while staying at the destination. We do this by asking participants to evaluate 10 statements on this matter.

Figure 35 illustrates attitudes towards different aspects of visiting a wind power facility as a tourist attraction. 50 % of respondents agree to a varied extent that a wind power facility accessible to visitors can be a popular attraction and an important reason to visit a destination. Similarly, 50 % of respondents accept that visiting a wind power facility and learning more about renewable energy would be fascinating. Meanwhile, 20 % agree that it could be disturbing.

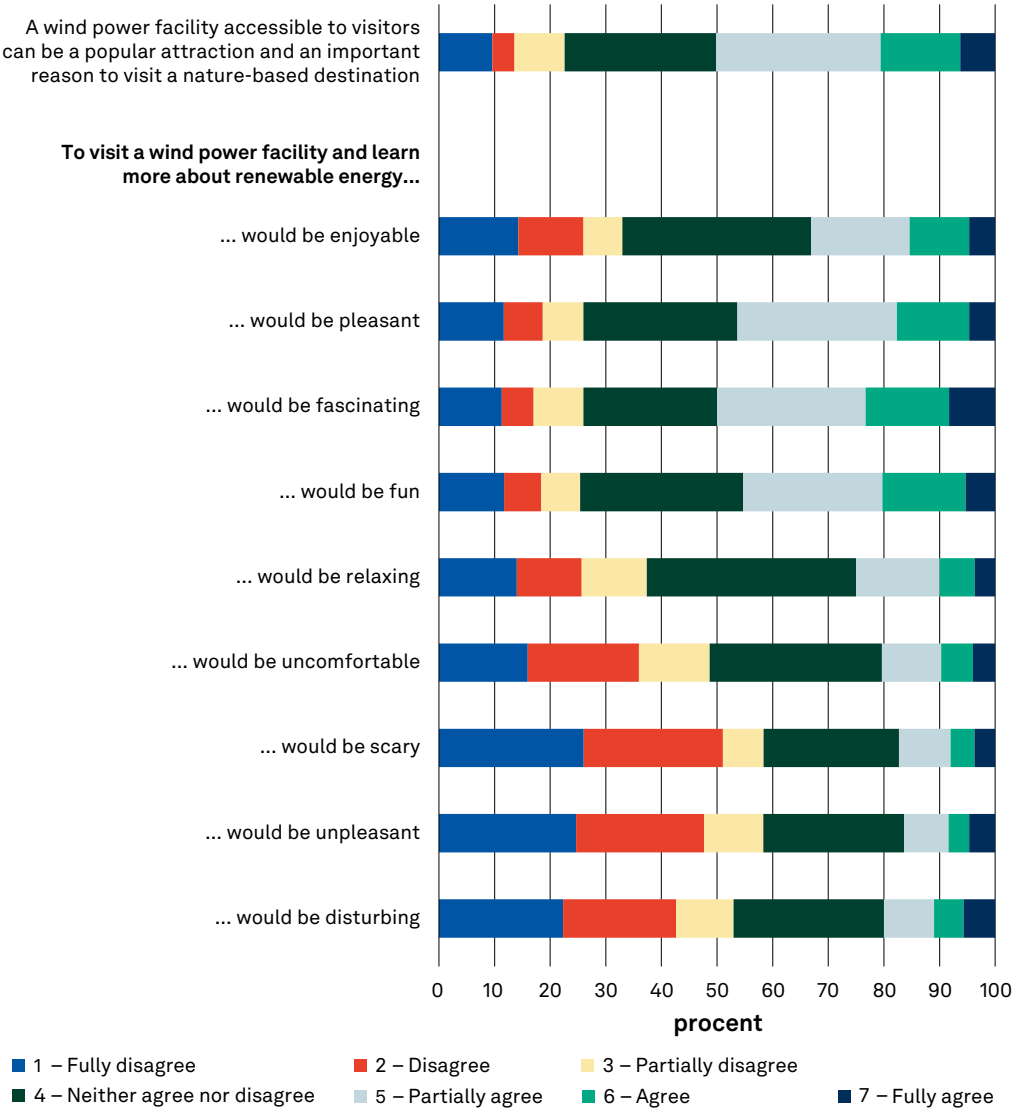


Figure 35. Attitudes towards visiting a wind power facility as a tourist attraction and learning more about renewable energy.

Figure 36 illustrates different behavioral intentions related to visiting a wind power facility as a tourist attraction and learning more about renewable energy. Overall, 52 % of respondents agree to a varied extent that they would like to visit a wind power facility as a tourist attraction and learn more about wind energy. 34 % of them would encourage friends and relatives to do so. Furthermore, 27 % of respondents expressed some degree of willingness to visit a wind power facility soon (i.e., 4 % of respondents fully agree, 5 % agree and 18 % partially agree). We can therefore interpret this result as an indication that there is a significant proportion of respondents who would be highly interested in visiting a wind power facility as a tourist attraction if it were to be possible to engage in such an activity.

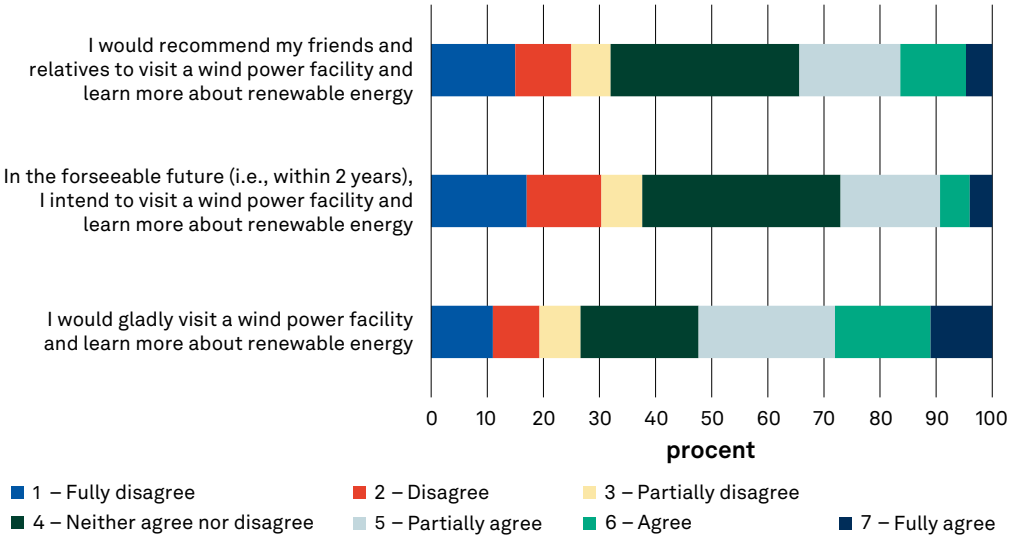


Figure 36. Behavioral intentions towards visiting a wind power facility as a tourist attraction and learning more about renewable energy.

In Figure 37, we compare attitudes towards visiting a wind power facility as a tourist attraction at a destination between 1) respondents with more positive opinions on wind power and those with more negative opinions on wind power, and between 2) respondents with higher participation in hiking and tent camping and lower participation in hiking and tent camping. Overall, 71 % of respondents with more positive opinions on wind power and 57 % of respondents with higher participation in hiking and tent camping agree to a varied extent that a wind power facility accessible to visitors can be a popular attraction and an important reason to visit a destination. In comparison, 26 % of those in the groups with more negative opinions on wind power, and 43 % of those with lower participation in hiking and tent camping agree with this statement.

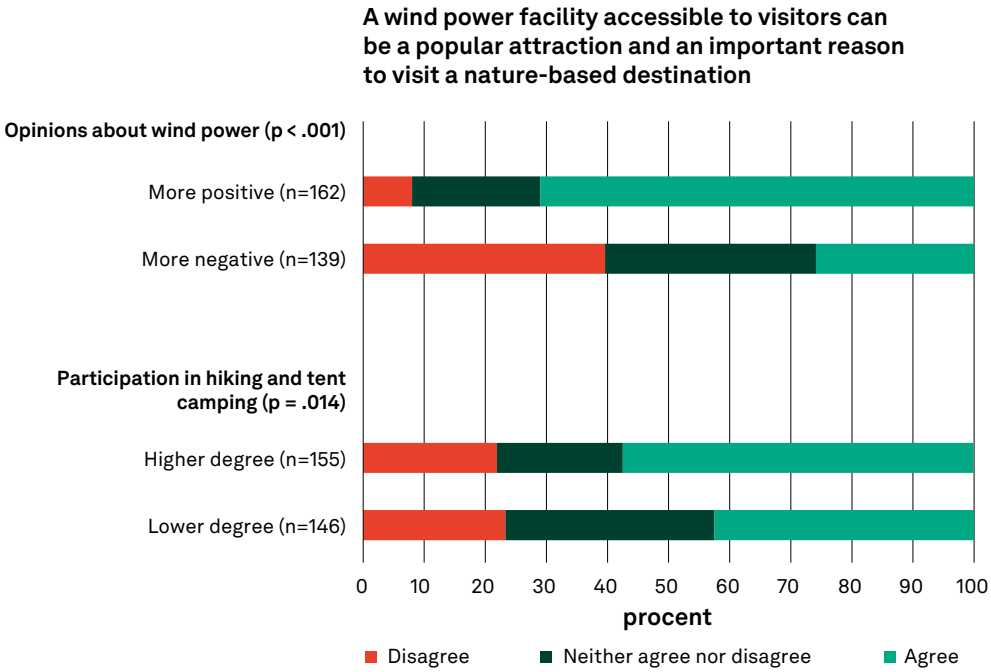


Figure 37. Attitude towards visiting a wind power facility as a tourist attraction at a destination based on opinions on wind power and participation in hiking and tent camping.

In figures 38 and 39, we see different relationships between the grouping variables related to 1) opinions on wind power, and 2) participation in hiking and tent camping, and attitudes towards visiting a wind power facility as a tourist attraction and learning more about renewable energy. The relationship is statistically significant (< .005) for all aspects of attitudes towards visiting a wind power facility as a tourist attraction that we compared between the respondents with more positive and more negative opinions on wind power. 67 % of the respondents with more positive opinions on wind power agree that visiting a wind power facility as a tourist attraction would be fascinating. This is in comparison with 31 % of respondents who have more negative opinions on wind power. 14 % of the respondents with more positive opinions on wind power agree that it would be disturbing. This is compared to 27 % in the group with negative opinions on wind power.

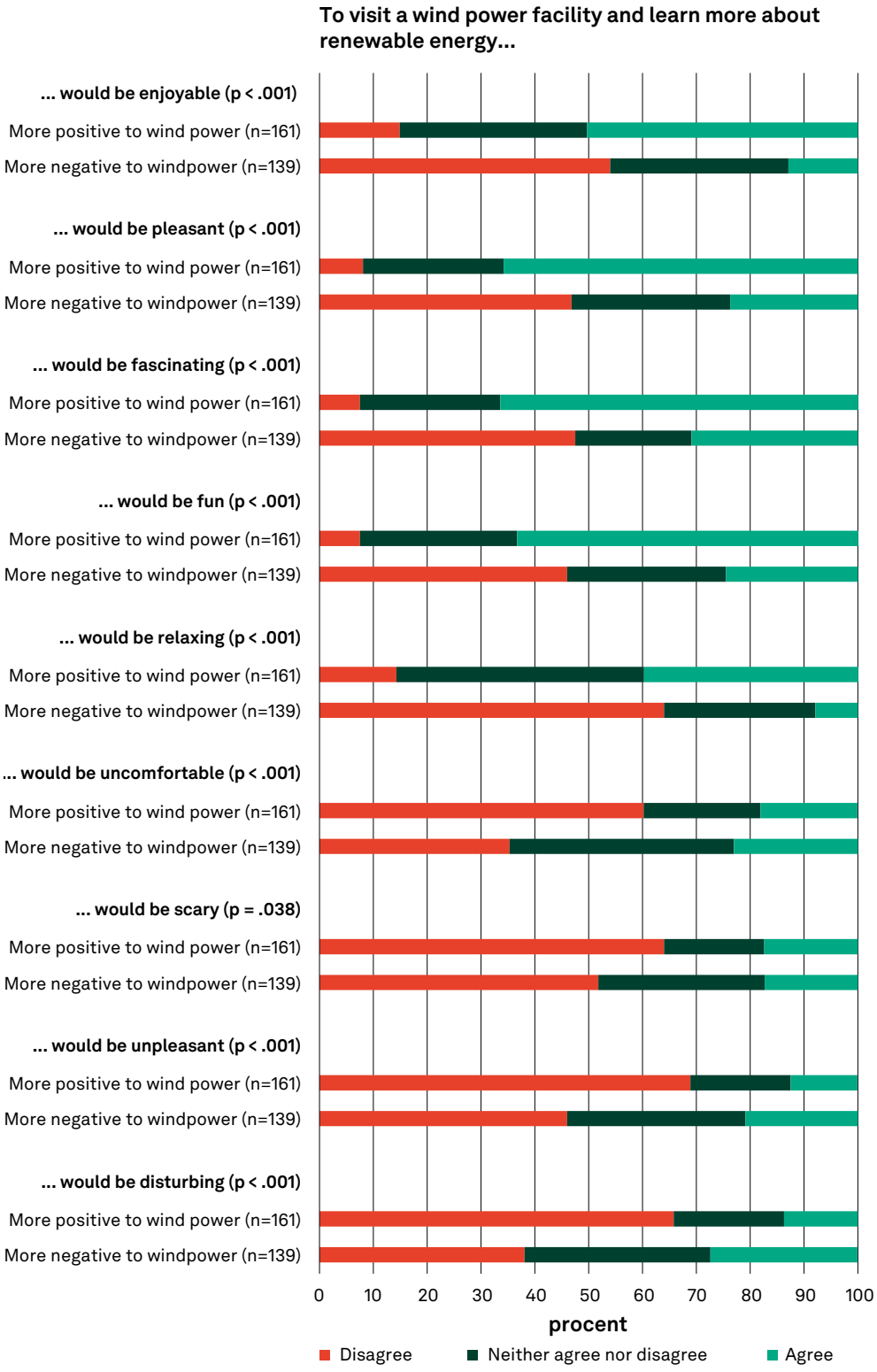


Figure 38. The relationship between opinions on wind power and attitudes towards visiting a wind power facility as a tourist attraction and learning more about renewable energy.

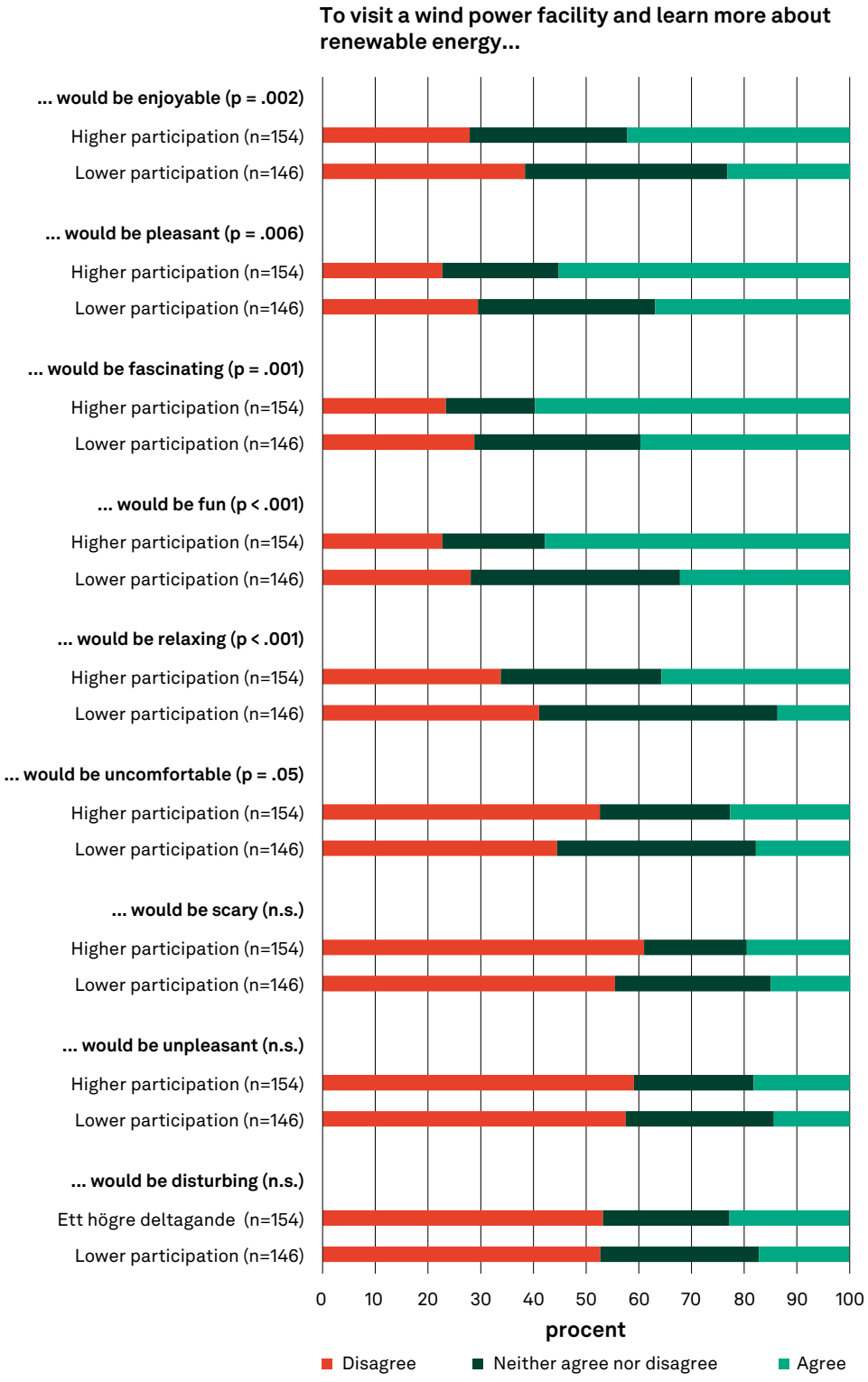


Figure 39. The relationship between participation in hiking and tent camping and attitudes towards visiting a wind power facility as a tourist attraction and learning more about renewable energy.

The relationships between participation in hiking and tent camping and positive attitudes towards visiting a wind power facility as a tourist attraction (i.e., for the attitudinal aspects enjoyable, pleasant, fascinating, fun, and relaxing) is statistically significant (< .05). However, there is no significant relationship between participation in hiking and tent camping and three out of the four statements reflecting negative attitudes towards visiting a wind power facility as a tourist attraction (i.e., the relationship is significant only for the attitudinal aspect "uncomfortable") (see Figure 40).

60 % of respondents with a higher degree of participation in hiking and tent camping indicate that visiting a wind power facility as a tourist attraction would be fascinating. In comparison, 40 % of respondents in the group with lower participation in hiking and tent camping indicate that visiting a wind power facility as a tourist attraction would be fascinating.

Figure 40 shows the relationship between opinions on wind power and behavioural intentions towards visiting a wind power facility and learning more about renewable energy. We see that 70 % of respondents in the group with more positive opinion on wind power would gladly visit a wind power facility and learn more about renewable energy. 50 % would recommend others to do so. In contrast, in the group with respondents with more negative opinions on wind power, 32 % of them would gladly visit a wind power facility and learn more about renewable energy and 14 % would recommend others to do so. In the group with more negative opinion on wind power, 42 % of respondents would not like to visit a wind power facility and 49 % would not recommend others to visit such a facility. In comparison, in the group with more positive opinions on wind power, only 13 % would not visit and 17 % would not recommend.

Figure 41 shows comparisons between the respondents with a higher and those with a lower degree of participation in hiking and tent camping. 62 % of respondents in the group with higher participation in hiking and tent camping would like to visit a wind power facility. 44 % of them would recommend others to do so. In comparison, in the group with lower participation, 43 % of them would like to visit a wind power facility and 25 % of them would recommend others to do so. In the group with lower participation, 40 % of respondents would not recommend friends and relatives to visit a wind power facility and 32 % of them would not like to visit themselves. In comparison, in the group with higher participation, 25 % of respondents would not recommend friends and relatives to visit a wind power facility and 22 % of them would not like to visit themselves.

Overall, results indicate that there is a potential market for energy tourism at destinations. The interest in visiting a wind power facility is closely associated with opinions that potential visitors hold about wind power. This interest is noticeably higher among the potential visitors who participate more actively in outdoor activities such as hiking and tent camping. Results demonstrate how the statements used to evaluate the attitude towards consumption and behavioral intention can be adapted and further evaluated in the actual setting of real-world destinations.

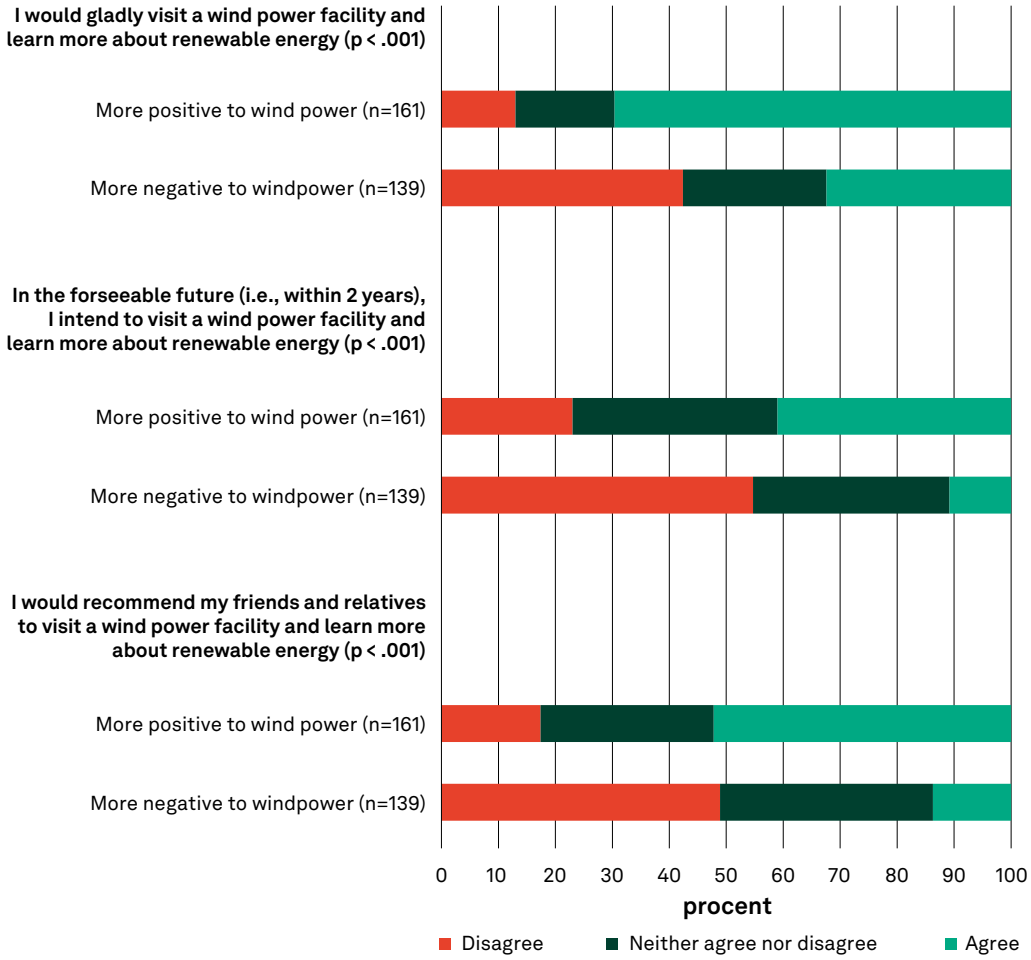


Figure 40. The relationship between opinions on wind power and behavioral intentions towards visiting a wind power facility and learning more about renewable energy.

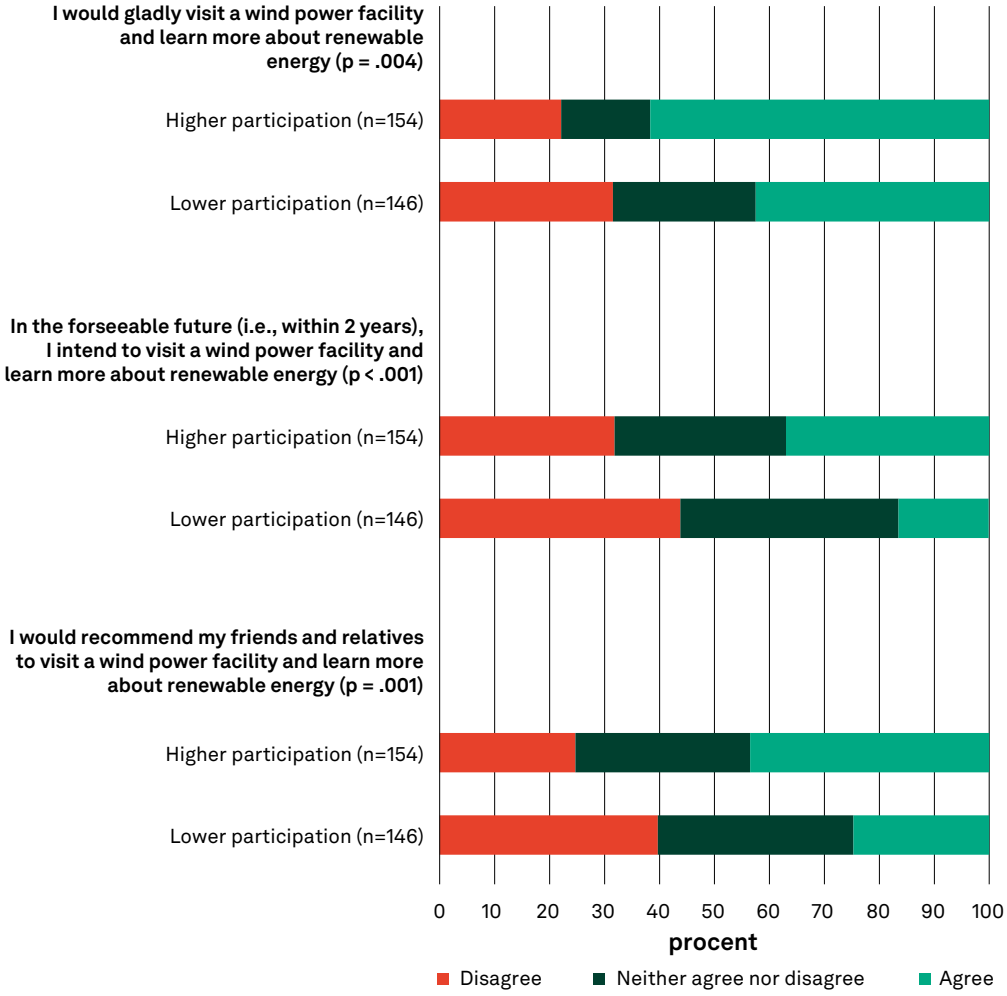


Figure 41. The relationship between participation in hiking and tent camping and behavioral intentions towards visiting a wind power facility and learning more about renewable energy.

5. Conclusion

In this project, we designed and tested a survey tool to address concerns consistently voiced by local stakeholders in Swedish municipalities. These concerns revolve around the potential impact of wind power infrastructure on the attractiveness of nature areas for visitors, and the apprehension that it may discourage specific tourist segments from visiting. It is imperative to highlight that the primary outcome of our study is the newly developed survey tool. This tool offers a comprehensive perspective on the perceived value of the tourism experience at destinations where wind power infrastructure is visible in nature areas. To assess the validity of the survey tool, we applied it to an unspecified destination and utilized a panel database provided by the Netigate survey platform. While the results of the survey tool testing are consistent with prior research and with the qualitative results of the project, they should be nonetheless approached with caution. In this concluding section, we summarize the features of the survey tool, address the potential limitations of the study results and give recommendations on how to adapt the survey tool to specific destination contexts. We also discuss the need for stakeholder dialogue and transparent communication in tourism and wind power development.

ANALYSIS OF RESULTS

Results related to opinions on wind power among our respondents corroborate the results of the qualitative study conducted early in the project. The major themes and aspects identified during the qualitative data analysis remained salient after the analysis of the quantitative data. The themes: habituation to wind power infrastructure, associating wind power infrastructure with sustainability, concerns regarding the negative impact of wind power infrastructure on nature areas, and the importance of social context for understanding opinions on wind power. Importantly, the quantitative findings from the survey emphasize the role of opinions on wind power in shaping attitudes, anticipated emotions of pride and guilt and behavioral intentions when it comes to making the decision to visit a destination where there is wind power infrastructure visible during the tourism experience in nature areas.

Prior research associates participation in outdoor activity with a predisposition to support pro-environmental initiatives as outdoor recreationists and tourists to nature areas often seek to reduce ecosystem degradation because they value wildlife, plants, and animals. Our qualitative study additionally suggests that tourists are less likely to notice wind turbines in natural landscapes when they are involved in physically demanding outdoors activities. By testing the survey tool, results also show that tourists who participate more in outdoor activities, such as hiking and tent camping, have more positive opinions on wind power development and its impacts on nature and society. This group has also a more positive attitude towards visiting destinations where there is wind power infrastructure in nature areas and is even more likely to visit such destinations. The tourists who more actively participate in hiking and tent camping also express higher levels of anticipated pride associated with the decision to visit a destination where there is wind power infrastructure, and higher levels of anticipated guilt if they would decide not to visit a destination where there is wind power infrastructure.

The application of the perceived value scale in the context of the tourism experience in nature areas where there is wind power infrastructure indicates that respondents with more positive opinions on wind power also attribute more value to emotional and epistemic, spiritual and sustainability factors. Respondents with higher levels of spirituality and who value more the sustainable destination are also more likely to visit a destination where there is wind power infrastructure in nature areas. Our results show that all value dimensions (i.e., emotional and epistemic, spiritual and sustainable destination) are positively associated with the intention to recommend to friends and relatives to visit a destination where there is wind power infrastructure in nature areas.

Finally, we addressed the issue of the growing interest for energy tourism as a type of sustainable tourism experience and examined attitudes and intentions towards visiting a wind power facility as a tourism attraction. The results corroborate the discussion currently evolving in the scientific literature on energy tourism, outlining that there is an interest in visiting a wind power facility among about half of the respondents in our survey. Nonetheless, this positive interest in visiting a wind power facility as part of tourism experience is closely associated with having a positive opinion on wind power. Moreover, the group with respondents who participate more actively in outdoor activities, such as hiking and tent camping, show a higher level of interest and a more positive attitude towards visiting wind power facilities as part of tourism experience.

SUMMARY OF THE SURVEY TOOL

The design of the survey tool involved several phases. We used a literature review, qualitative research and applied current research in tourism studies and sustainable consumer behaviour. We integrated key aspects of pro-environmental and responsible tourism behavior in our measurement instruments, including attitude towards pro-environmental and responsible consumption, anticipated emotions of pride and guilt associated with decisions to engage or not engage in pro-environmental and responsible behavior, and pro-environmental and responsible behavioral intentions. We adapted these aspects to the context of wind power infrastructure in nature areas at destinations by modifying the measurement scales used in prior consumer behavior research so that we could evaluate attitudes, anticipated emotions, and behavioral intentions specifically regarding visiting a destination where there is wind power infrastructure in nature areas that tourists can see during their visit. Overall, the survey asks respondents to recall relevant aspects of their profile and experience with outdoor activities, intentional behavior, pro-environmental and pro-societal beliefs, trust in sustainability, and prior experience with wind power infrastructure.

To enhance the familiarity of the respondents with a destination where there is wind power infrastructure in nature areas, we developed a short film to show to respondents. In this short film, they encounter wind power infrastructure as part of a two-day tourism experience in a nature area. This short film enhanced the validity of the results because it ensured that respondents had experienced the scenario under study before they evaluated statements about it. The observations conducted at various destinations in Sweden during the qualitative phase of the project were essential to the development of this short film. Also, highly valuable to its making, were the consultations with members of the wind power sector, and researchers

with expertise in landscape ecology and tourism consumer behavior. Similarly, we selected the photos included in the short film based on our qualitative observations and consultations with experts and based on our visual analysis of Instagram pictures of wind turbines in Sweden posted by German and Swedish users.

Overall, these are the three feature components included in the survey tool:

- **Opinions on wind power of tourists visiting destinations where there is wind power infrastructure in nature areas.** We designed the statements to assess the opinions of respondents on this matter by analyzing our qualitative interview data to identify relevant aspects influencing the opinions on wind power of tourists visiting destinations where there is wind power infrastructure in nature areas. With the data from the survey on tourist opinions of wind power, we can identify the respondents more in favor of wind power and those who are less in favor, which enables us to test the relationship between opinions on wind power and other variables influencing the tourism experience in nature areas.
- **Perceived value of the tourism experience in nature areas where there is wind power infrastructure.** We use the emotional, epistemic, and eudemonic value scales developed through prior experience value research in the context of nature-based tourism and outdoor recreation to measure dimensions of the perceived value of the tourism experience in nature areas where there is wind power infrastructure. This means that our survey can test the influence of values such as self-reflection, relaxation, landscape aesthetics, physical activity, learning and connecting with nature, etc. on the tourism experience at destinations where there is wind power infrastructure in nature. Moreover, we developed further the measurement of perceived value with the addition of a factor we called the "sustainable destination" value dimension. We developed the factor of the sustainable destination by using previous research that measured altruistic and ethical aspects of tourist consumer value.
- **Attitudes and intentions towards visiting a wind power facility as a tourist attraction.** With the proliferation of renewable energy installations around the world, energy tourism is emerging as a new niche market in tourism. To integrate this trend to our survey, we developed a set of statements to evaluate attitudes and intentions towards visiting a wind power facility as a tourism attraction.

Overall, after testing the survey on a panel, the results demonstrate the applicability of the scales modified and developed to make them relevant to the context of experiencing wind-power infrastructure in nature areas at destinations. As part of the quantitative data analysis, we have tested the relationships between various elements of the conceptual model measured by the survey tool. The relationships between these elements are significant and theoretically sound, which indicates the nomological validity of the measurement instrument. The parts of the questionnaire, which were not included in the analysis (e.g., pro-environmental beliefs and trust in destination sustainability), can further be examined to provide more nuanced understanding of the mechanisms, which shape the attitudes, behavioral intentions and perceived value of tourism experience in nature areas with wind power infrastructure. These in-depth findings are going to be presented in the follow-up publications.

LIMITATIONS OF THE SURVEY TOOL

There are methodological limitations that should be considered. Firstly, there is always a risk of social desirability bias in surveys addressing pro-environmental attitudes and behaviours. Respondents may have provided answers that they perceive as socially desirable rather than reflecting their true opinions or behaviours. This bias can affect the validity of self-reported data. Secondly, while the short film is designed to enhance respondent familiarity, it introduces a potential bias. The visual stimuli provided in the film might influence respondents' opinions and attitudes, possibly leading to an overestimation of the positive perceptions related to wind power infrastructure. Thirdly, while the study integrates qualitative and quantitative methods into a mixed-method research design, it heavily relies on survey data for its recommendations. A more comprehensive understanding of tourists' opinions, perspectives, and experiences of wind power infrastructure in nature areas could be achieved by complementing the survey with additional qualitative methods, such as in-depth interviews or focus group discussions.

The study focuses on destinations in Sweden where wind power infrastructure is visible to tourists recreating and traveling in nature areas. This means that the study focused mostly on tourism experiences in nature where recreational activities such as tent-camping and hiking can be enjoyed. The findings may not be easily applicable to different geographical or cultural contexts since the survey was developed specifically to assess this type of context. Therefore, the survey tool developed in this project is most applicable in the context of rural destinations with sparsely populated areas and forest landscapes. Consideration of contextual factors is important when interpreting and applying the results to other types of regions. The survey tool would need to be adapted to other contexts (i.e., marine landscapes, Arctic landscapes, etc.) to generate results relevant to those contexts. There is a widespread interest in developing offshore wind power infrastructure, but our survey tool as it is developed is not adequate to assess perceived tourism experience value of marine landscapes. We also present general results about energy tourism. The study discusses emerging trends in energy tourism, specifically visiting wind power facilities. However, the generalizability of findings to other forms of energy tourism or different types of renewable energy sources is not explicitly addressed.

Readers also must be aware of limited causality inference. While the study identifies associations between variables, establishing causality is challenging. The cross-sectional nature of the survey limits the ability to draw definitive conclusions about the causal relationships between opinions, behaviours, and other variables. Moreover, while the study claims nomological validity of the measurement instrument, there might still be unexplored aspects or potential biases in the measurement scales used for assessing attitudes, emotions, and intentions.

ADAPTATION OF THE SURVEY TO SPECIFIC CONTEXTS

To assess the validity of the survey tool, we applied it to an unspecified destination and utilized a panel database provided by the Netigate survey platform. Practitioners wishing to research the tourist value experience of specific destinations will have to make some amendments to the survey tool before operationalizing it to ensure its relevance for the specific context they wish to research. The adaptations that might be necessary are outlined here:

- **The short film about a destination.** In the survey tool, we use a short film with photos, text, and audio narration to test the visual impact of wind turbines on tourism experience in nature areas. The short film was developed in collaboration with experts from the wind power sector. The film illustrates encounters with wind turbines during a two-day hiking trip at varying distances both during transportation to the hiking area and during the hiking tour. Further adaptation of the survey tool to a specific destination context will require further collaboration between the wind power sector, public officials, and tourism destination stakeholders to produce a short film that reflects the features of the specific destination. This collaboration is especially important for the selection of visual prompts which adequately represent the tourism experience at a specific nature area and the actual encounters with turbines that are likely to occur at that specific destination.
- **Description of the tourism experience.** The adaptation of the survey tool and the application of its findings at a destination will depend on a nuanced understanding of how the presence of wind power infrastructure affects the various stages of the tourism experience in nature areas. The tourism experience forms through expectations shaped by diverse sources of information, including communication and marketing messages from the destination, on-site experiences, and post-trip evaluations. Practitioners operationalizing the survey tool therefore need to obtain a clear picture of the specific components (i.e., physical infrastructure and information) that tourists encounter at the destination at stake to adapt questions and statements in a relevant way. Tourists' destination encounters include various information sources before and during the trip, booking channels, transportation to and around destination, accommodation, food, activities, use of social media etc. Apart from seeing the wind turbines physically while at destination, the tourist could have seen the news about wind power development at the destination, encountered the wind power imagery at the destination website or posted own photos with wind turbines via social media. In this study, we use the short film to model these encounters. The description of the tourism experience needs to be adjusted to the actual destination characteristics. As the survey tool is adapted to the context of specific destination, the survey participants (actual or potential tourists) can be asked specific questions about various aspects of the character of their experience (i.e., information, transportation, accommodation, food, activities, landscape, atmosphere etc.) to recall it and compare how it influenced perceived value of wind power encounters.

- **Tourist segmentation.** An important aspect of the survey tool is its ability to effectively differentiate between diverse tourist segments likely to encounter wind power infrastructure as part of their tourism experience. The general findings of the study suggest that segmenting survey participants according to activities is of relevance for the assessment of the perceived value of tourism experience in nature areas with wind power infrastructure. To adapt the survey tool to a specific destination, the profile questions about the participants need to be formulated based on pre-existing knowledge about diverse tourist segments.
- **Questions on energy tourism.** We included the images of a wind power trail and of information desks at a wind park to illustrate a wind energy tourism attraction at a destination as part of the short film about the two-day hiking trip. In its current version, the survey tool integrates questions about general interest of visiting wind power facility as tourism attraction. When applying the survey tool in practice, it should be considered whether such sites exist at the destination and how they are built (e.g., the viewing points with information boards, exhibitions, guided tours etc.) before including questions on energy tourism in the survey. The adaptation of the survey tool could mean rephrasing existing questions and supplement the survey with visual and textual material so that they apply to specific attractions already existing at the destination or planned for development. Alternatively, the survey tool can be used to identify recommendations for wind energy tourism projects. By applying it, interest across various segments and potential impacts on the perceived value of the tourism experience and destination attractiveness can be assessed.
- **Questions on community benefits.** We designed the survey so that the tourist perception of the importance of the wind power sector of giving back to local communities could be specifically tested. The short film in the survey describes a scene where tourists receive information about a wind park and its contribution to local infrastructure and community development. The short film specifically mentions that the wind park contributes annually with funds for the maintenance of paths and trails in the area and that associations active in the area can also apply for grants from the wind power park's community funds to support their activities. Communication from the wind power sector must address community concerns and highlight the potential positive social impacts of wind power infrastructure, including on the tourism economy. Therefore, we suggest that the adaptation of the survey tool to a specific destination context should consider the actual impact of wind power development and the practical implementation of compensation schemes on the tourism experience value. This could be done by adjusting the visual and textual prompts to the actual destination context so that the information available at the destination is assessed. Alternatively, the survey could include specific questions regarding local compensation schemes and the contribution of wind power infrastructure to local development.

STAKEHOLDER DIALOGUE AND TRANSPARENT COMMUNICATION

Stakeholder dialogue among tourism destination practitioners, public officials, and the wind power sector should be an integral part of the sustainability agenda of destinations tackling global and local challenges of development and climate change adaptation. Regarding wind power development, tourism stakeholders should openly address a wide range of questions, such as:

- What are the defining features of a destination that offers opportunities for sustainable tourism experiences in nature areas?
- What are the defining characteristics of tourists interested in sustainable tourism experiences in nature areas?
- What role does the presence of wind power infrastructure in nature areas play for the provision of sustainable tourism experiences at a destination?
- How does a destination communicate the presence of wind power in nature areas to tourists to support the provision of sustainable tourism experiences and promote sustainability transitions?
- What kind of benefits does wind power infrastructure at a destination bring to communities and specifically for the opportunity to experience nature areas (e.g., in the form of improved accessibility, enhanced safety due to expanded mobile network coverage, the use of compensations schemes to develop tourism infrastructure such as trails and signage) and how are these benefits communicated to tourists before and during their stay?
- What are the negative impacts of wind power infrastructure development on nature areas and local community wellbeing? What efforts can be deployed to mitigate these negative impacts and how does the destination communicate these impacts and mitigation efforts to tourists?

Overall, our findings indicate that tourists in nature areas are in general aware and appreciative of the connection between wind power, climate change and sustainable development. Therefore, tourism stakeholders at destinations with wind power infrastructure (if appropriate with regards to its impact on local environment and community well-being) should not be afraid of communicating to tourists the presence of wind power infrastructure in its nature areas and its impacts. In their everyday lives, tourists are confronted with contradictory information about wind power development through the media and their informal contacts. Hence, in the absence of transparent information on the presence of wind power infrastructure at a destination, tourists seeing wind power infrastructure will make sense of it through contradictory and fragmented information.

Transparent communication regarding the sustainability aspects of wind power development and its benefits could be key to improving the experience of tourists visiting nature areas where there is wind power infrastructure. There is also a need to address concerns about the negative impacts of wind power infrastructure. Communication strategies should specifically address concerns about the negative impacts of wind power infrastructure on nature areas and adjacent community development. Particularly, the wind power sector has a responsibility to provide information about measures taken to minimize environmental impact and emphasize the overall positive contribution of wind power to sustainability.

As our results indicate that there is interest in energy tourism, we propose that the wind power sector can consider collaborating with local stakeholders to promote wind power facilities as tourist attractions. However, it is crucial to note that the tourist interest in visiting wind power facilities closely relates to having a positive opinion about wind power. The development of energy tourism can provide with opportunities for communication and education. The wind power sector can take the lead in communicating the positive aspects of wind power and address concerns about its negative impacts. This includes educating the public about the environmental benefits, sustainability features, and community contributions of wind power projects. Importantly, the wind power sector should initiate such activities in collaboration with the tourism sector and community leaders. Collaborating with the tourism industry creates the opportunity to integrate wind power infrastructure into tourism experience in nature areas. The wind power sector and the tourism sector can work together to create educational materials, guided tours, and interactive experiences that display the positive aspects of wind power.

It will be crucial to engage with local communities to understand and address concerns about the impact of wind power infrastructure on resident well-being and access to nature areas. Involving residents and community groups in sustainable tourism development initiatives can contribute to positive attitudes towards tourism experience in nature areas where there is wind power infrastructure. Often, local communities have very negative perceptions of the presence of wind power infrastructure in their locality. These negative views should be nuanced because many people base their opinion on wind power infrastructure on what they believe that visitors experience when they see it. While there is little evidence that wind power infrastructure ultimately deters tourists from visiting or enjoying nature areas, community concerns for the preservation of local landscapes should be taken seriously. All stakeholders must acknowledge the importance of the local context in shaping opinions on wind power development.

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Wind power infrastructure and perceived value of tourism experience in nature areas

Holistic perspective and assessment tools

This report features a measurement instrument that assesses the perceived value of the tourism experience at destinations where there is wind power infrastructure visible in nature. The research team developed a survey based on a literature review, a qualitative study, and insights from sustainable consumer behaviour research.

The findings of this project reveal that the value judgments of tourists on sustainability transitions and sustainable consumption influence their perceptions of wind power infrastructure in nature areas. This is shown in both qualitative and quantitative data.

The survey results show that participants who engage more in outdoor activities tend to have positive opinions on wind power. Those with positive opinions on wind power attribute higher value to emotional, epistemic, spiritual and sustainability factors.

The conclusion chapter offers a discussion of the results and of the implications of adapting the measurement instrument in the real-life context of destinations where tourists might encounter wind power infrastructure in nature areas.

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