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From cautious pessimism to community acceptance: An analysis of the linkage between public participation records and community acceptance of wind farm projects.

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ABSTRACT

Wind farms, as one renewable energy technology, have an increasingly important role to play in the context of a rapid, and world-wide, move towards renewable energy. As wind farm projects are implemented, they will have an impact on an increasing number of communities around the country. It is mandatory for any large infrastructure project such as a wind farm to undergo an Environmental Impact Assessment ("EIA") process. This must include a public participation component, wherein members of the effected community are allowed the opportunity to provide feedback and comment on the proposed development. This dissertation explores the link between subsequent community acceptance of wind farms and the initial sentiments expressed in project feasibility documentation, specifically EIA records and public participation processes. If community approval is inadequate, the implementation of wind farm projects will be in jeopardy. It is therefore critical to better understand the driver of community acceptance.

The study follows a qualitative approach comprising a multiple case study design. Data is collected through semi-structured interviews with landowners adjacent to two operational wind farm projects, located in South Africa's Eastern and Western Cape provinces. This is combined with a comprehensive analysis of project EIA documentation. The results show a material contrast between subsequent acceptance levels and initial community sentiments. While both wind farms now demonstrate high levels of community acceptance, this differs significantly from the "cautious pessimism" evident in historical EIA records.

Cross-case analysis between the two projects highlight how factors such as cumulative impacts of multiple wind farms in an area, socio-economic conditions, and construction management practices significantly influence acceptance levels. The results show that while EIAs provide an important baseline for predicting community acceptance of wind farm projects, they likely do not fully capture the dynamic factors affecting long-term community sentiment. The study illustrates that construction phase impacts, although temporary in nature, plays a crucial role in shaping community perceptions. This was not fully anticipated in the EIA documentation.

These findings contribute to the broader understanding of how community acceptance evolves throughout a wind farm's lifecycle and suggest that EIAs should be viewed as living documents rather than static predictions of a particular point in time. The research recommends implementing ongoing stakeholder engagement beyond the initial EIA phase, developing adaptive management strategies to address emerging community concerns, and enhancing public participation methods to better prepare communities for wind farm development impacts.

Keywords: Community acceptance, wind farms, public participation, Environmental Impact Assessment (EIA), renewable energy, stakeholder engagement, qualitative research.

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List of Abbreviations

EIA	Environmental Impact Assessment
GIS	Geographical Information System
GW	Gigawatt
I&APs	Interested and Affected Party
IEA	International Energy Agency
IPP	Independent Power Producer
KPI	Key Performance Indicator
LTWF	Lake Turkana Wind Farm
MEES	Mixed Environmental, Economic and Social
NEMA	National Environmental Management Act
NERSA	National Energy Regulator of South Africa
PPA	Power Purchase Agreement
REIPPPP	Renewable Energy Independent Power Producer Procurement Program
SEA	Strategic Environmental Assessment
SLO	Social License to Operate

1. Chapter One: Introduction

1.1. Introduction

The assimilation of wind energy projects into local landscapes has developed into a critical component of the energy transition in South Africa (Ley & Hammond, 2021). Yet the success of this transition is often contingent upon the acceptance of wind farms by local communities and adjacent landowners and does not hinge solely on technical and environmental considerations (Ruddat, 2021; Dotterud, Leiren, et al., 2020).

Although wind energy is increasingly recognised as an important power source with broad public support for the sector, wind farms often trigger social conflict and local opposition. To avoid this and promote social acceptance, whilst avoiding conflict, the wind energy sector must undertake substantial community engagement (Colvin, Witt, & Lacey, 2016; Solman, Bush, Smits, & Van Vliet, 2021). The integration of wind farms requires a nuanced understanding of community dynamics in the affected area, particularly from the perspective of adjacent landowners.

This thesis examines the relationship between adjacent landowners and wind farm projects. Specifically, it investigates the extent to which adjacent landowners' acceptance of wind farms aligns with project feasibility documentation, including Environmental Impact Assessment ("EIA") records. The research compares wind farm projects to identify common patterns and trends between stakeholder acceptance and documented feasibility assessments. This provides usable insights for improving project feasibility work and stakeholder relationships in the wind energy sector. These insights can inform policy decisions and serve as a blueprint for a more streamlined and efficient wind farm development process. Note that in the context of a public participation process, the term interested and affected parties ("I&APs"), of which adjacent landowners are a sub-set, is an often-used designation. The term will therefore often be used in the context of a process or legislative requirement.

1.2. Context and background

The worldwide trend towards renewable energy is gaining momentum, and South Africa is rapidly participating in this trend. According to the International Energy Agency (IEA), renewable energy is projected to grow by nearly 2,400 GW between 2022 and 2027 worldwide. This increase will be equivalent to the total installed power capacity of China at present (International Energy Agency, 2023). The motivation behind this transition is chiefly driven by the desire for low-emission technologies and increasingly, government policies aimed at meeting carbon reduction requirements (Harvey, Dew, & Hender, 2017; Dotterud Leiren, et al., 2020)

Similarly, South Africa is a signatory to the Paris Climate Accords, wherein the country pledged to significantly reduce greenhouse gas emissions to between 350 and 420 million tonnes by 2030 (from 442 million tonnes in 2020). This requires the decommissioning of coal fired power plants and the rapid deployment of renewable energy. The commitment is a legally binding treaty on climate change (Mukherjee, 2023). The result is that wind energy is now economically viable under certain conditions and a strong business case can be made for the technology with no subsidies (Hassan, et al., 2024). Thus, the global rollout of wind farms, as one particular renewable energy technology, is increasing quickly (Harvey, Dew, & Hender, 2017) and a quickly growing number of communities will be expected to co-exist with wind projects (Maitre, Ryan, & Power, 2024).

The technology of wind turbines is constantly evolving, with tower heights exceeding 150 m (Hoen, Bolinger, & Wiser, Land-Based Wind Market Report: 2022 Edition, 2022). This evolution highlights the increasing potential for these structures to significantly alter the landscape and create conflict with surrounding landowners. The below discussion seeks to unpack the primary nuances relevant to the wind energy industry in South Africa. Specifically, the state of the industry in South Africa, the EIA process that underpins public participation and feasibility work, and the drivers of project acceptance.

1.2.1. South Africa's renewable energy industry

Procurement of renewable energy has its nexus in a governmentled competitive auction process known as the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP). The programme was launched in 2010 to facilitate private sector investment into utility scale renewable energy projects (Eberhard & Naude, The South African Renewable Energy Independent Power Producer Procurement Programme: A review and lessons learned, 2016). For over a decade, this was the only avenue for independent power producers to sell power. In 2021, the National Energy Regulator of South Africa ("NERSA") lowered the threshold for a generation license to zero, meaning that projects no longer require a generation license to operate (a historically onerous process). This opened the market to the sale of energy to private customers and is currently the primary driver of project initiation. The need for "green electrons" and a push to decarbonize supply chains will also be important factors driving project growth. Additionally, renewable energy will substantially contribute to ensuring energy security by way of job creation, maintaining energy price stability, increasing electricity access and reducing the risk of dire consequential environmental events caused by global warming (Rabbi, Popp, Máté, & Kovács, 2022).

Wind energy facilities are classified as distributed generation facilities in the sense that they are generally smaller projects (megawatt of installed capacity) that are located throughout the country. Locations will generally be dependent on the resource – specifically, how windy the site is (Swamy, et al., 2020). This infers that a greater number of communities will be impacted upon and is a significant differentiating factor from conventional baseload generation capacity, which consists of fewer, but significantly larger plants in terms of footprint and installed capacity. The Eskom mega-build projects of Medupi and Kusile are good examples of such conventional coal-fired power plants.

The development, construction, and operation of renewable energy plants in South Africa are predominantly carried out by the private sector. There is one exception to this – the Sere wind farm, which was constructed by the national utility company, Eskom (IPP Office, 2023). As of 2022, renewable energy generation contributed only 7% of the electricity generated in South Africa (Le Roux & Pierce, 2023). This 7% comprises 3.4GW of wind and 2.3GW of solar energy and is owned and operated by private sector entities. Institutional investors, such as pension funds, typically own the majority of equity in these projects, rather than the initial developers who conceptualized and developed the projects (IPP Office, 2023).

1.2.2. Wind farm development process

The process of developing a wind farm takes a systematic approach that generally starts with conceptualisation and identifying a project site (this is done by the developer) and considers factors such as access to the transmission network and the wind resource. Once a site is identified, land tenure must be secured before the full ambit of feasibility work can commence. The feasibility study includes the EIA. Once the project is fully permitted, a customer for the power can be sought and finance raised for construction. The development process takes a minimum of three years. The buyer of the power is contracted via a Power Purchase Agreement (“PPA”) – either as a private buyer of the wind power or through a public procurement process. The latter is facilitated by way of the REIPPPP. Large infrastructure projects, such as wind farms, are generally financed through a project finance model. This approach ensures that the project is managed within a separate, ring-fenced entity, and the necessary funding for construction is sourced through a combination of debt and equity (IPP Office, 2023).

Land tenure is a vital component of the process. It is very rare for developers of wind farm projects to purchase real estate outright. Instead, landowners and project companies sign long-term leases. This lease is registered against the participating landowner's title deed for the project and is enforceable against subsequent landowners for the term of the lease. (Green, 2013). The rate at which the landowner is remunerated is codified in this lease, as is the duration. The duration of the lease must align with the PPA and is normally for a period of 20 years.

1.2.3. Environmental Impact Assessment Process

The Environmental Impact Assessment ("EIA") documentation is the primary source of information for I&APs during the development of a wind farm. The EIA process involves a public participation process that allows for any party to provide feedback that must be taken into account by the competent authority before a decision is made about the approval of a wind farm project (Maphanga, et al, 2023). Effective public participation is challenging to achieve. It is generally determined by two key factors, namely, stakeholder attitudes and the management of the actual participation process. This refers to the fact that certain methods will obtain certain outcomes, but a chosen process will not please everyone and cannot be totally effective (Hartley & Wood, 2005).

The EIA process is legislated by the National Environmental Management Act 107 of 1998 ("NEMA"), which stipulates that any development that triggers a set of listed activities requires an EIA process by an independent consultant (Sandham, et al., 2013). From an industry perspective, community engagement, as part of the EIA process, is often viewed as a vehicle to obtain a social licence to operate (SLO) (Colvin, Witt, & Lacey, 2016).

An EIA should effectively identify and evaluate the potential environmental, social, and economic impacts of the proposed wind farm, and recommend measures to minimize or mitigate those impacts (Sandham, et al.,2013) (Molaiwa, 2021). Crucial to this process is the opportunity for stakeholders, including landowners and community members, to provide input during the public participation process. An effective EIA is essential in identifying potential areas of conflict with landowners, such as property value depreciation, noise, and visual impacts (Briggs & D. Hudson, 2013). By identifying such concerns, the project company can revise the project design to mitigate the impacts and minimize conflict. It should be noted, however, that an EIA cannot completely eliminate conflict between landowners and wind farms developers.

Nevertheless, it can serve as a valuable tool for wind farm companies in reducing conflict, and increasing acceptance levels, through stakeholder engagement, impact identification, and mitigation recommendations.

It is important to recognise that the complexity of an EIA for a wind energy facility can be potentially problematic. There is a much greater volume of information required than for an average EIA process: for instance, the development of a residential house. This aspect of the process is further explored in this study. It is posited that the process of specialist studies feeding into the scoping report, which in turn feeds into the EIA, may be sub-optimal and not lead to positive outcomes. The theme of information overload was explored by Warren, Stojanovic, & Smart (2014), in which respondents to the study highlighted the inherent complexity in wind farm EIA applications.

1.2.4. Wind farm Acceptance

Acceptance deals with the positive reception, contributing to approval, and sustainable implementation of a technology (Zaunbrecher & Ziefle, 2016). Community acceptance is fundamental to the successful implementation of any wind farm project (Langer, Decker, Roosen, & Menrad, 2016; Ruddat, 2021; Baxter, Walker, Devine-Wright., et al, 2020), and project success is dependent on more than merely permitting approvals or funding; it requires the acceptance of the local community (Sonnberger & Ruddat, 2017). This ensures smoother development, reduces costs, and prevents delays from legal challenges or local opposition (Baxter, Walker, et al., 2020). Acceptance is a complex issue that touches on socio-economic, policy and environmental issues. Acceptance is also temporally nuanced – it is likely higher prior to project initiation, lowest during development and construction and then improves once the local community has become accustomed to living in proximity to the project (Baxter, Walker, et al., 2020; Le Maitre, Ryan, & Power, 2024).

The definition of community can take different guises. In the context of this study, it is assumed that the “community” consists of local people who are directly or indirectly effected by the wind farm project in a positive, or negative, manner. All respondents that took part in this study formed part of the host community for their respective projects. Noting that respondents were not required to be active participants in the wind farm project, in the sense of being landlords with turbines on their property. Rather, it was necessary for respondents to be directly effected. For example, visually impacted, noise effected, socio-economic reasons etc.

Whilst it is generally acknowledged that renewable energy offers significant environmental benefits in the form of reduced emissions, studies reveal varying levels of public support (Baxter, Walker, et al., 2020; Le Maitre, Ryan, & Power, 2024; Hammond Antwi & Ley, 2021; Sonnberger & Ruddat, 2017). This is mostly driven by factors such as visual and noise impact, perceived negative effects on property values, and perceived fairness in decision-making processes. There is thus a known “gap” between general public support for wind energy (typically very high) and local project acceptance (typically low). (Janhunen, Hujala, & Pätäri, 2017). This cognitive dissonance, whereby rational and educated people recognise the benefits of renewable energy but oppose its development in their communities is not uncommon (Eiser & Jones, 2002; Wolsink, 2000). This reluctance is especially relevant in areas with affluent landowners, who value their privacy and existing sense of place (Janhunen, Hujala, & Pätäri, 2017).

When projects are well-accepted, they tend to create positive precedents for future renewable energy developments, contributing to a more sustainable and equitable energy future.

Recent studies emphasize procedural justice (implemented through the EIA), trust in developers, and community benefit-sharing arrangements as key determinants of acceptance (Sonnberger & Ruddat, 2017). Acceptance can differ in type and classification. Sociopolitical acceptance concerns the acceptance of policymakers and primary stakeholders. Market acceptance speaks to investors, whilst community acceptance pertains to issues such as procedural justice, distributional justice, and trust (Rand & Hoen, 2017).

Fischhendler, Herman, Barr and Rosen (2021:21) termed the moniker of “*Golden Triangle*” to articulate drivers of acceptance at the community level: community cohesion, fairness, and community acceptance wind technology.

The experienced effect on people's sense of place when it comes to a particular space or area is a major factor contributing to negative sentiment against wind farm developments. Conflict may arise when this sense of place is compromised. Land use changes are substantial modifications to the physical and social environment of a region that may have detrimental effects on the ecosystem, the local economy, the community, and the natural landscape (Firestone & Kempton, 2007). Many believe that the way of life, culture, and legacy of the local community are in danger because of these changes (Firestone & Kempton, 2007).

Changes in land use can also lead to conflict between various interest groups in a community (Riechers, et al., 2019). Conservationists, for instance, might consider a proposed wind farm as a threat to the environment, but others might see it as an opportunity. The reasons behind this are explored further in this study but can generally be attributed to the scale of these projects and their location in previously rural and untouched parts of a country.

1.3. Problem statement

The high, and increasing, number of wind farms under development and in operation in South Africa has created concern about the competence and effectiveness of planning and public participation processes in the context of adjacent landowners. Community acceptance of wind farms is essential for the success of any project, but this acceptance often fluctuates over the course of the project's lifespan. Recognizing and addressing these changes are crucial for effective project management, making the link between community acceptance and public engagement efforts an important area of investigation.

1.4. Research question

The main research question to be addressed is as follows:

I. "To what extent does community acceptance (or lack thereof) of a wind farm project reflect the initial sentiments expressed in the project feasibility documentation, specifically EIA records?"

The main research question is supported by the following sub questions:

II. What are the main concerns raised, and sentiments expressed by I&APs during the EIA process of a proposed wind farm?

III. How do these concerns and sentiments change (if at all) once construction of the wind farm has been completed, and it becomes operational?

IV. How can improved engagement with I&APs during the EIA process aid earlier project acceptance?"

1.5. Research Proposition

The research proposition of this study may be stated as follows: The degree of community acceptance of a wind farm is not static; it evolves over the lifespan of the wind farm project.

1.6. Study aim and objectives

The purpose of this study is to determine whether the current community acceptance (or lack thereof) of the wind farm reflects the sentiments expressed in the project feasibility documentation, specifically EIA records and the public participation section of the EIA. The research objectives to be achieved are summarised below:

I. Evaluate the acceptance of wind farm projects among local community members and adjacent landowners.
II. Identify the concerns and sentiments of I&APs regarding proposed wind farm projects during the EIA process.
III. Examine the factors influencing I&AP support or opposition to proposed wind farm projects.
IV. Identify best practices for achieving stakeholder acceptance of wind farms in the South African context.
V. Develop strategies for better engagement with local communities.

By assessing these factors, the study aims to identify any discrepancies or alignments between stakeholder acceptance and the documented feasibility assessments. It is the aim of the research to improve the wind farm EIA process so that projects are better accepted and ultimately the roll out of renewable energy can be accelerated, or at least not be negatively affected by disgruntled community members.

1.7. Methodology

The study follows a qualitative approach based on a multiple case-study design. The literature review, found in Chapter 2, provides the theoretical framework for the study. It also seeks to pinpoint significant gaps in current research regarding community acceptance of wind farms. Although priority is given to acquiring current publications (2020-2024), earlier seminal works are incorporated when more recent material is lacking or when historical context is significant. Similarly, the literature review aims to identify recurring themes and examine discrepancies in research findings.

Empirical data is collected via unstructured telephonic interviews with six landowners directly adjacent to the two selected case-study wind farms. Similarly, other data sources are interrogated to provide context and background to the topic. A grounded theory approach was applied. The experiences, perceptions, and attitudes of the adjacent landowners are explored.

This qualitative data is subjected to thematic analysis and cross case analysis, allowing patterns and themes to emerge from the narratives of participants. To ensure that the sample was representative of the broader community of stakeholders affected by wind farm projects, six adjacent landowners were purposefully selected from the local area. This selection aimed to capture a range of experiences, reflecting the diversity of views and attitudes within the community living in proximity to the project site.

Thematic analysis allows for a fuller understanding of common patterns, themes, and differences between the case-study projects. This approach provides a better understanding of broader trends and insights that cannot be gained by studying a single case. It is commonly used in qualitative research and allows one to draw more generalizable conclusions.

This study follows strict ethical protocols. This includes informed consent, confidentiality, and data security, with ethics clearance obtained in advance. Participants were fully briefed, free to withdraw, and treated respectfully, with cultural norms acknowledged. A semi-structured interview approach enabled open dialogue, while researcher bias and study limitations were transparently addressed. This was critical to ensuring credibility.

1.8. Scope and limitations

Scope parameters were applied to the study. Focus was applied to operational wind farm projects in South Africa with an evident adjacent and effected landowner community. It was vital that these communities were in a position to provide comment on the level of acceptance towards the wind farm. Projects in different provinces were also sought and a bias towards recent projects was applied. It was also required that the EIA records were available for perusal. Whilst every endeavour was made to answer the research question in a robust and thorough way, the research invariably must address and mitigate limitations. Although every effort was made to minimize these, the following may still apply. Firstly, the retrospective nature of the research must be mentioned: both wind farms were built ten and twelve years ago and thus the data and recollections of the sample population are not completely current. It is important to acknowledge the potential limitations associated with studying wind farms that were built several years ago. Changes may have occurred in the regulatory framework, stakeholder engagement practices, and community dynamics over time. However, by studying these cases valuable lessons can still be learned regarding the effectiveness of project planning and project acceptance, and the research can still be used to inform future wind farm projects.

Secondly, possible biases and subjectivity in respondent perceptions must be acknowledged. Participants may have personal interests, preconceived notions, or biases that may influence their perspectives around the project, and this would also affect responses. The research questions were designed in such a way as to minimize this risk by crafting non-leading questions and ensure confidentiality and anonymity of participants to encourage honest and open responses.

Despite the limitations, this retrospective case study aims to provide valuable insights into the planning and public participation component of the EIA. It is hoped that the findings will contribute to understanding past practices and in doing so, informing recommendations for future wind farm projects and public participation processes.

1.9. Research structure

The structure of this report comprises several key components. This chapter offers an introduction and background, as an outline of the research problem and research questions that the study seeks to address. The remaining chapters in this report are structured as follows:

Chapter 2 comprises the literature review. This provides an overview of the relevant literature on the topic. The theoretical framework underpinning the research is also explained in this chapter. Any gaps in the literature that the research aims to fill are identified.

Chapter 3 focuses on the research methodology. It outlines the research design and approach. This chapter also explains the data collection methods and sampling techniques used in the research. Additionally, the data analysis techniques used to analyse the collected data are discussed.

Chapter 4 presents and discusses the results and findings in detail.

Chapter 5 concludes the report with a summary and answers to the research questions. It discusses the implications of the findings and research limitations. Recommendations for future research are also provided.

2. Chapter 2: Literature Review

2.1. Introduction

This chapter reviews existing literature, aiming to enhance knowledge, deepen understanding, and contribute to academic discourse in the field. Any development, but especially a utility-scale wind farm, must be carefully planned. Part of this planning involves stakeholder engagement via the public participation process of the Environmental Impact Assessment (EIA) process (Wang, Ulibarri, A. Scott, & Davis, 2023) . It is generally accepted that if interested and affected parties are not given a voice in the decision-making processes, initial supporters may later turn into objectors against the project (Hindmarsh, 2010). Objection can lead to conflict. To avoid this and foster community acceptance, the wind energy sector must undertake community engagement (Colvin, Witt, & Lacey, 2016).

This chapter examines the key themes from the available research on public participation and acceptance in the context of wind farm development. The chapter starts with a discussion of South Africa's energy landscape to provide the necessary perspective.

2.2. Energy landscape in South Africa

Electricity is vital to the well-being of any country. For a developing country, it is even more important for continued economic and socio-economic growth (Bodunrin, Oke, & Akinbami, 2021).

The energy backdrop in South Africa is dominated by Eskom as the monopoly player that controls distribution, transmission and generation in the country. The Electricity Regulation Amendment Act 38 of 2024 (the Act), which South Africa's president Cyril Ramaphosa signed into law in August 2024, will likely change this vertically integrated model to a multi-market structure (Roberts, 2024). The implementation of this Act will guide the speed and nature of this disruption.

The shift towards renewable energy and away from carbon-emitting forms of power generation is clear (International Energy Agency, 2023; Ruddat, 2021). There is increasing international consensus regarding the need to address global warming. The main impetus around this accord is the implementation of renewable energy technologies (Hassan, et al., 2024; Disano, Behrsin, & Levenda, 2021). This is shown by the significant increase in installed capacity of wind power across the world. At the end of 2021, there was a total of 838 gigawatts

(GW) of installed wind power across the world with 94 GW being added in 2021 alone. The majority of this added capacity (sixty percent) occurred in China and the United States of America (Hoen, Bolinger, & Wiser, Land-Based Wind Market Report: 2022 Edition, 2022).

In South Africa, as of October 2024, wind energy delivered 5,5 % of South Africa's electricity needs, coal is still the dominant supply source at 82,8 % (Fitzgerald, et al., 2024). The penetration of renewable energy in South Africa is quickly increasing and is anticipated to continue to grow at an increasing rate, driven chiefly by a desire to decarbonise industry supply chains, national energy security (Rabbi, Popp, Máté, & Kovács, 2022) and the rapidly decreasing cost of wind and solar power (Eberhard & Naude, 2016; Fitzgerald, et al., 2024). South Africa has also signed the Paris Climate Accords, wherein it committed to drastically lower its greenhouse gas emissions from 442 million tonnes in 2020 to 350–420 million tonnes by 2030. This calls for the rapid installation of renewable energy sources and the decommissioning of coal-fired power plant (Mukherjee, 2023).

It is therefore vital that the planning and community engagement process is thorough and fit for purpose so that acceptance of wind technology is not compromiosed (Bodunrin, Oke, & Akinbami, 2021; Le Roux & Pierce, 2023). As stated by le Maitre, Ryan, & Power (2024:10): "living *close to a wind farm is expected to become an increasingly common experience for non-urban communities in regions with high wind potential."*

2.3. Environmental Impact Assessment

Notwithstanding all the other consents that may be required, the construction of a wind farm in South Africa requires that an Environmental Impact Assessment ("EIA") be completed, and an Environmental Authorisation ("EA") issued (National Environmental Management Act 107 of 1998; Park, Ji-Hyeon, & Hyun-Jin, 2025). This is because the construction process will trigger listed activities as defined in the applicable legislation and an EIA is therefore required (Sandham & Pretorius, 2008). New wind farm projects are a function of many inflection points and decisions but ultimately, only wind farms with a valid EA will be built. Thus, the aggregate of all local decision-making processes adds up to an increase or decrease in the total installed wind capacity at national level (Wolsink & Breukers, 2007). This is the "cost" to the country of a sub-optimal EIA or public participation process: wind farms that are constructed in locations that are sub-optimal from a societal perspective and ultimately lead to conflict.

The legislation underpinning the EIA process in South Africa is the National Environmental Management Act ("NEMA") (National Environmental Management Act 107, 1998). This legislation is generally accepted as being world class. However, there are concerns around the implementation of this legislation and in particular, the correct application by local authorities who do not always possess the capacity or training to implement progressive legislation (Molaiwa, 2021). The next section focuses on a specific aspect of the EIA process, namely the public participation process.

2.4. Public Participation Process

Public participation is a core component of any EIA process. The importance of extensive public participation and stakeholder engagement when planning wind farm projects are highlighted in the literature (Janhunen, Hujala, & Pätäri, 2017; Liu, Bouman, & Perlaviciute, 2020; Solman, Bush, Smits, & van vliet, 2021).

Notwithstanding the legislative requirements, public participation can be actively pursued by the wind farm applicant, with a proactive and forward-looking approach to the issue, or the minimum can be done (Janhunen, Hujala, & Pätäri, 2017). The following discussion is divided into four parts. First, it provides a legislative overview of the public participation process. Second, it focuses on different forms of public participation. Thereafter, it examines indicators of successful public participation. Finally, it explores public participation failure.

2.4.1. Legislative overview

Public participation in environmental governance is an integral part of the country's democratic design and is needed to fully realize the environmental rule of law (Hall & Lukey, 2023). In the South African context, public participation is governed by the National Environmental Management Act ("NEMA") of 1998. The regulations applicable herein were repealed and replaced in 2006 by a new set of regulations and notices of listed activities. One of the reasons for developing the new regulations was the desire to improve the provisions regarding public participation (Hall & Lukey, 2023). The act was further amended in 2008 to include a new requirement (amongst others) that any administrative process or decision taken in terms of NEMA must be done in accordance with the Promotion of Administrative Justice Act, 2000. The court system in South Africa also plays a role, and in 2021 and 2022, important judicial precedents were set regarding an EIA application by Shell for offshore drilling (*Sustaining the Wild Coast NPC v Minister of Mineral Resources and Energy*, 2022; *Adams v Minister of Mineral Resources and Energy*, 2022). The rulings showed the courts were willing to uphold the right to public participation and showed a willingness to rule that public participation must be taken seriously by government and not be dealt with as a tick-box exercise. A similar case was bought by Earthlife Africa against the Director: Department of Environmental Affairs in respect to the development of a nuclear power plant (*Earthlife Africa v Director General Department of*

Environmental Affairs and Tourism, 2005). It was argued that they were not provided crucial information that was required to enable the organisation to make full and proper representations. The court found in their favour (Hall & Lukey, 2023).

The NEMA Regulations require that at least 60 days of public consultation is carried out. This includes 30 days in the scoping period and 30 days during the EIA phase. The regulations also require that appropriate measures are put in place to mitigate the range of cultural and language requirements of community members. The measures can include public meetings or workshops and radio advertisements, separate meetings with vulnerable people and other specific approaches (Department of Environmental Affairs, 2017).

2.4.2. Forms of public participation

A full understanding of differing methods of public participation is a requisite for an informed understanding of the EIA process. NEMA outlines two approaches: a normal EIA and a Strategic Environmental Assessment (SEA). The latter is a more integrated approach that assesses regional accumulative impacts. It is generally used to enable the compilation of a sustainability framework that can be applied to a development over a continuous period of time (SARAO, 2018). In the planning stage, the Strategic Environmental Assessment (SEA) function is crucial and can help address some of the root causes of the public's opposition to wind farms (Martinez & Komendantova, 2020). In a similar vein, it serves as a useful tool for focused environmental impact mitigation as well as preventing social unrest in impacted communities while wind farms are being planned and built (Josimovi´c, Cvjetic, & Furundzic, 2021).

An alternative stakeholder engagement process is the mixed environmental, economic and social (MEES) method. It involves identifying stakeholders, categorizing them using interest and power metrics, and identifying key performance indicators (KPIs) (Fois, Lecis, & Cocco, 2022). In a case study in rural Sardinia, the MEES methodology focused on four categories: human life, safety, social resources, and public participation. The methodology is useful in identifying environmental, economic, and social indicators relevant to a local community, revealing which ones have the greatest impact on stakeholders. In the test case, noise, visual impact, renewable energy production, and profitability were the most important indicators (Fois, Lecis, & Cocco, 2022).

2.4.3. Indicators of successful public participation

A well-implemented public participation process will add value to all stakeholders and ensure environmental protection. In essence it will result in “democratic participation” wherein all potential impacts are recognised and where planners acknowledge all extra environmental burdens associated with wind farms, such as noise and visual impact (Levenda & Behrsin, 2021). It is therefore considered best practice to involve the community in the immediate vicinity of a proposed project (Coleby, 2009). Similarly, it will increase the probability of a better project development decision by enabling citizens to voice their concerns and play an active role in the decision-making process (Peterlin, C. Kross, & Kontic, 2008; Ma, 2022). Ultimately, this results in a project having a Social License to Operate ("SLO"), or acceptance of the project by interested and affected parties (Wolsink, 2000). A SLO is defined by Stuart., et al (2023: 4) as "*a license that represents the ongoing acceptance, approval and support from communities and/or stakeholders.*"

Stakeholder engagement comes at a cost. This could be financial or time-related costs. It could also be the cost of opening the applicant up to scrutiny and comment that may have been avoided had there been no consultation process. It is therefore useful to apply a framework to determine if public participation is value-adding, notwithstanding that it is a legislated and required process. Gaber (2019) explains this issue using the metaphor of a ladder of citizen participation. In the metaphor, each rung of the ladder shows a progressive level of stakeholder participation. The bottom-level rungs indicate minimal or zero participation (tokenism) whilst the higher rungs indicate high levels of citizen power (Gaber, 2019).

Today, most stakeholders and citizens recognize the significance and role that participation plays in the planning process. This prevailing approach is acknowledged by Blue and Fast, (2019) who propose the inclusion of the following components to ensure effective participation. First, effective participation requires appropriate procedures to ensure all relevant people and perspectives are represented. This must take into account location and cases. Second, all perspectives must be recognised and valued —not just dominant ones. Third, the inequitable distribution of wealth must be identified and managed. Finally, planners should intervene indirectly to force participation parity by recognizing and seeking to correct existing structural inequality (Blue & Fast, 2019).

At the pinnacle of the spectrum of public participation is a clear process that facilitates empowerment of the community to influence decision-making (Colvin et al., 2016). The following metrics define this stage:

1. Metric: Engaging the community early in the public participation process; incorporating community input into project planning and design in a manner perceived to be genuine will build trust.

- The South African legislation meets this metric. The EIA regulations dictate that 30-days of public participation must be done twice. This allows for a feedback loop to inform the process and forces community feedback to be taken into account in the final reckoning (National Environmental Management Act 107 of 1998.).

2. Metric: Exceeding minimum legislated requirements.
   - This is encouraged but not mandated. The wording in the regulations, pertaining to vulnerable I&APs speaks to “could” when detailing extra measures that could be put in place (for instance workshops and or public meetings).

3. Metric: Establishing community consultative committees. Forming a long-term commitment to and relationship with the community and seeking to avoid possible explosive settings, such as town-hall meetings.
   - The relevant legislation does not meet this metric as public meetings are encouraged, and there is no mention of consultative committees.

Similarly, Hellmuth & Jakobs, (2022) explain that public participation can take place at three levels: information, consultation, and cooperation. A particular case study found that all procedures followed the law, but most respondents complained about poor communication (Zepp & Guan, 2020). This supports the idea that effective communication is crucial for participation, as identified by Colvin et al (2016).

2.4.4. Public Participation Failure

Large infrastructure projects often trigger social conflict and local opposition (Colvin, et al, 2016), and energy projects, in particular, often generate controversy throughout their project lifecycle (LaPatin, et al., 2023). However, should community members be given an opportunity to participate and express their opinions during the planning stage and the developer responds to their requests, the acceptability rate of the project will likely be high (Janhunen, Hujala, & Pätäri, 2017). The counter is also true and negative perceptions of the previously mentioned points of participation result in a decrease in acceptability and the probability of conflict will rise (Makmor, et al., 2020). A lack of public participation process can cause long-lasting harm and will ultimately prevent the project from achieving a social licence to operate. This is defined as a process that fails to meaningfully engage with stakeholders and low participation rates (Janhunen, Hujala, & Pätäri, 2017). In extreme cases, this will lead to conflict. The objective of the EIA process and specifically the public participation component is to reduce the opportunity for conflict and to facilitate the acceptance of the project by interested and effected parties. (Gross, 2007). Similarly, the general perception toward a wind farm development is often based strongly on consultation.

Colvin et al, (2016) identified five primary drivers of possible local conflict. These were problematic pre-feasibility engagement, the lack of a third-party facilitator of the community consultative committee, holding a vote which polarised the community, the lack of a clear place in the engagement process for local opposition, and lastly the significance of local context.

An instance of project planning and public engagement gone wrong is the Kinangop wind farm in Kenya. The project started construction in 2015 but land tenure issues, local concerns regarding compensation for land and issues raised by the local community, regarding health problems from turbines, resulted in the total abandonment of the project (Naibei, 2019). The Lake Turkana Wind Farm (LTWF) in Kenya is another example of a project on the African continent that deteriorated into direct conflict. The project was heralded as one of the largest private investment injections into the country – it is currently the largest wind farm on the African continent (Lomax, Mirumachi, & Hautsch, 2023).

The project was rooted in complex socio-ecological issues and a lack of understanding regarding the socio-cultural impact on the local community was shown. A competent public participation would potentially have negated this conflict. Although this is an extreme example, it does show a worst-case outcome. This is useful to understand in the context of reducing the probability of conflict occurring (Lomax, Mirumachi, & Hautsch, 2023).

2.5. Wind farm acceptance

Acceptance of wind energy projects is critical for the successful transformation of an energy system (Ruddat, 2021; Zaunbrecher & Ziefle, 2016; Langer, Decker, Roosen, & Menrad, 2016) and it is for this reason that wind farm acceptance is the foundational focus of this research project. Acceptance takes the form of a positive attitude towards the project, manifesting as support, but also passive non-response to a project. (Jørgensen & Anker, 2020). Research into the topic is substantial and has sought to divide social acceptance into various categories. These include socio-political, community and market acceptance (Linnerud, Rygg, & Dugstad, 2022). Additionally, the general acceptance of wind energy technology and policies is generally well understood, but more systematic research is still needed to determine the relative importance of the various factors that shape acceptance (Dotterud, Leiren, et al., 2020).

A strong theme emerges around the disconnect between general support for wind farms and resistance by those directly affected by a particular project (Janhunen, Hujala, & Pätäri, 2017; Colvin, Witt, & Lacey, 2016). For example, when research focuses on wind energy in general, most respondents answer positively, with climate change prevention featuring prominently. However, personal costs such as noise or visual impact are noticeable when concentrating on a specific wind farm. (Hujala, Pätäri, and Janhunen, 2017). The degree of acceptance is a multi-faceted issue and is driven by a variety of factors, which are fundamental to answering the research question (Sardaroa, et al., 2019; Jørgensen & Anker, 2020). These factors, discussed below, include community acceptance and ownership structure, locality, environmental justice, sources of conflict, heritage, planning, developer perceptions, environmental harm, impact on property values and revenue, and visual impact.

2.5.1. Stakeholder Management

Effective stakeholder management is crucial in facilitating the acceptance and successful implementation of wind farm projects. The principles outlined in the Project Management Body of Knowledge (PMBOK) emphasize the importance of proactive communication, transparency in processes, and collaborative decision-making (Rabechini, Alberto Morris Abarca, Salcedo, Jhonnatan , & Cruz Paiva, 2020)

These elements are critical for addressing potential conflicts, aligning stakeholder interests, and creating trust between all stakeholders. If stakeholder management is done correctly, it will increase the probability of project success and reduce the risk of opposition or project disruption. Ultimately, the Social License to operate will more likely be achieved.

2.5.2. Community Acceptance and Ownership Structure

Different models of project ownership lend themselves to higher levels of project acceptance. In the general sense, local stakeholders, such as landowners, individuals, and municipalities, that participate in a project, will display a higher degree of project acceptance and trust. This may take the form of a revenue sharing model or a community ownership structure (Mjahed Hammami, et al, 2016; (Dotterud Leiren, et al., 2020).

Similarly, community wind energy is a positive development option that seeks to provide diverse local benefits including capacity building, resilience and awareness of renewables (Baxter, Walker, Devine-Wright, Adams, & Smith Fullerton, 2020). Denmark has introduced a co-ownership scheme whereby local citizens are offered 20% of ownership in the project by way of a tender process, this is done at cost price (Jørgensen & Anker, 2020). Interestingly, this approach did not increase acceptance due to intertwined perceptions around the offering being insufficient and a feeling of bribery. Research also shows that wind energy is more acceptable if it is clear that the power produced by the project serves local energy needs (Linnerud, Rygg, & Dugstad, 2022). Likewise, projects that offer landowners a more substantial share of revenue or compensation are more likely to be successful (Frantál, Frolova, & Liñán-Chacón, 2023).

The interest of landowners who host wind turbines on their land can be distinguished from the interest of the local community in general. Importantly, host landowners rarely retain direct ownership in the project, but rather receive a percentage of the revenue generated by the project. Various methods of land tenure exist; landowners may either enter into a long-term lease with the project developer or the land may be subdivided and the identified portion sold to the developer. However, it is rare for project developers to outright purchase the subdivided land portion (Eberhard & Naude, THE SOUTH AFRICAN RENEWABLE ENERGY IPP PROCUREMENT PROGRAMME, 2016).

Across all wind farm projects in South Africa, local communities retain 9,3% ownership in the form of trusts. (IPP Office, 2023). This statistic refers to projects built as part of the government-run procurement process of the Renewable Energy Independent Power Procurement Programme. In this context, local communities are defined as community members residing within 50 kilometres of the wind farm project. Information on private power projects is not in the public domain.

2.5.3. Environmental Justice

Environmental justice refers to "*a social movement, and a theoretical lens, that is focused on fairness in the distribution of environmental benefits and burdens*" (Scott, 2014:10). The concept seeks to explain the potentially disproportionate impact of negative environmental effects on marginalised or poor communities (Disano, Behrsin, & Levenda, 2021). It is therefore a guiding principle that must be followed in the context of wind farm construction to ensure that all community members benefit or are at least not discriminated against. Total acceptance of the wind farm project would imply the achievement of environmental justice.

Community divisions resulting from perceived environmental injustice or other social and environmental issues are closely linked to large-scale infrastructure projects (Cross, 2001; van Marrewijk & van den Ende, 2019). These projects could be described as "conflict prone" (Hellmuth & Jakobs, 2022:12). Trust is a key component in achieving any level of acceptance. For instance, trust in a wind farm developer will likely increase the probability that an individual views a proposed development as fair (Aitken, 2010). A level of trust will also increase the chances that community members see a participatory process as being meaningful and that the organisation running the public participation is doing so in their best interests (Aitken, 2010). Public participation that allows people to influence major aspects of a project also leads to higher perceived procedural fairness, and this, in turn, leads to higher project acceptability (Liu, Bouman, & Perlaviciute, 2020).

The connection between trust and environmental justice and the EIA process is key, and those managing an EIA process should recognize this and put effort into active public participation to improve environmental impact assessments and the decisions emanating from this process. A well-run and successful process requires citizen and stakeholder support and the methodology to implement this is often the public participation component of the EIA (Maguire & Lind, 2003).

2.5.4. Sources of conflict

Identifying what a community or grouping of people consider important is crucial before any work on identifying and mitigating impacts can be undertaken. The following are dealt with in a material way in the reviewed literature. For instance, visual impact may well be deemed to be more important in one country or area over another, whilst cultural or heritage concerns could be apportioned more importance in other countries.

2.5.4.1. Heritage

The development of a wind energy project will likely result in a historically unprecedented change to the visual integrity of the landscape in question (Elena, 2023). Pasqualetti (2010) states that landscapes are not merely unoccupied swathes of land but can be viewed as "*a process*" that forms identities and can tell us much about human nature. The development of a wind farm can alter this process and is a clear heritage impact (Pasqualetti, 2010). An examination of the Lista wind farm in southern Norway showed the community members were mainly preoccupied with the historical characteristics of the landscape. This encompassed aspects such as stories pertaining to communal sections of the property or collective encounters. However, the EIA evaluation mostly concentrated on the potential effects on distinctive cultural artifacts, such as a particular farmhouse or burial site (Larsen and Jerpåsen, 2011).

2.5.4.2. Planning and location

The siting of wind turbine positions is based on several factors but is primarily driven by the presence of wind (the resource). This is because the higher the average wind speed, the higher the production of energy (Swamy, et al, 2020). Zarate-Toledo et al. (2021:454) state that "*renewable energy projects in Mexico have been designed solely based on the distribution of wind or solar resources, completely ignoring environmental or social issues*." Positions are also a function of minimizing the wake effect on adjacent wind turbines (Wang L. , 2018). This aspect is important and underlines why projects are located in particular areas that may not necessarily appear to be appropriate from a social or stakeholder perspective. Pasqualetti, (2010) summarizes public opposition towards wind energy developments through the lens of immobility. Wind energy requires specific locations that must adhere to existing natural, cultural, and social conditions within a specific geographical area. Relocating turbines to less controversial areas would result in a loss in production.

Frantál, et al., (2023) made the critical finding, based on an analysis of several projects across Europe, that the decisions made by local government officials, developers, and consultants during the wind project planning process can have long-lasting effects beyond the approval and permitting stage.

Public involvement is also likely to be highly localized and procedural. It is often aimed at informing local stakeholders and gaining their acceptance for implementation (Solman, Bush, Smits, & Van Vliet, 2021). Similarly, experience with wind farms has been found to be associated with increased acceptance of additional wind farm development nearby. Le Maitre, Ryan, & Power, (2024) found that community members who live near an operating wind farm or who live beyond the 2 km 'near-neighbour zone' are more likely to support extra development.

Cumulative impacts, the aggregation of impacts as development happens in parallel within a locality also informs community acceptance, it is also notoriously difficult to assess and manage (Kuempel, Stockbridge, O'Neill, Griffiths, & Frid, 2025).

If project landowners perceive the turbine siting process to be fair and equitable, the attitudes towards wind energy projects either remain stable or improve over time. However, if residents felt that they are not adequately involved in the planning process, or their concerns were disregarded, the opinions regarding wind energy projects would gradually deteriorate (Frantál, Frolova, & Liñán-Chacón, 2023). This is further discussed below.

2.5.4.3. Perception of developers

The issue of imposition was raised by Pasqualetti (2010). This is the perception that wind projects are initiated by others for their own benefit and profit, rather than being aligned with the interests of the affected communities. Often, attempts at increasing direct local ownership do not result in an increased acceptance level due to a lack of trust. This is centred around a feeling of bribery and a perception that the scheme is inappropriate (Jørgensen & Anker, 2020).

Firestone & Kempton (2007) also explored and wrote on the pecuniary interests of the developer in stark contrast to local opposition groups who are perceived to represent the "common good". This theme was similarly explored by Cowell, Bristow, & Munday (20114), wherein developers of wind farms have become increasingly alert to the risks of their activities being represented in colonial terms: "*as large incoming developers exploiting small rural communities.*" The outcome of this is that community benefits are seen as a mechanism of payment for "using" environments and landscapes which a local community may harbour proprietorship feelings towards.

2.5.4.4. Environmental harm

Operational wind farms cause environmental damage in a variety of biological and societal domains (Wang & Wang, 2015; Peschko, et al., 2020; Guam, 2023). Avifauna in particular is at risk. It is estimated that wind farms lead to up to 500 000 bird fatalities annually in the USA. (Gradolewski, et al., 2021). Using data from existing wind farms, it is estimated that a wind turbine will kill on average 4.6 birds a year. Thirty six percent of these are raptor species (Simmons, Cervantes, & Martins, 2022). This can have a severe impact on a local or even a regional bird population.

The literature is also cognisant of the positive effects of a wind farm on the receiving environment; survival rates of certain species have been shown to increase due to the reduction of people in the wind farm area (Goodluck, Ighalo, & Yap, 2022). Despite this, the perception remains that wind projects hurt their direct environment. Much focus is applied during the feasibility phase to reduce this impact by siting wind turbines in low-impact areas and avoiding highly sensitive or no-go areas. Similarly, during operation, there is potential to implement collision risk mitigation. This can take the form of shut-down on demand procedures, or automated bird protection systems (Szurlej-Kielanska & Pilacka, 2022).

2.5.4.5. Property values and loss in revenue from wind farm activities

There is a perception by many role players that the value of property adjacent to a wind farm project will decrease (Coleby, 2009). This is also empirically shown. A study of wind farms in Germany showed a 9-14% decrease in property prices for those farms with strongly affected views. Farms with minor visual impact experienced no devaluation (Sunak & Madlener, 2016). Conversely, a US Department of Energy study found no significant impact of wind turbines on home sales. The study analysed sales data from over 7,000 single-family homes within 10 miles of wind power facilities between 1996 and 2007. Eight pricing models and repeat sales models were used, but none showed clear property value effects or consistent measurable effects (Hoen, Wiser, Cappers, Thayer, & Sethi, 2009).

Wind farms are often located on rural agricultural land. However, there are limited known and studied negative consequences arising from the interaction between wind farms and agriculture. The amount of compensation that farmers receive for hosting wind farms on their land will differ significantly based on farm size, the number of turbines, the crop, the presence of surrounding wind farms etc (Sardaroa, et al., 2019). Payment and revenue is not always perceived to be fair or equitable by landowners (Sardaroa, et al., 2019). Similarly, wind farms can negatively affect revenue from tourist activities. A study of offshore wind farms in the Mediterranean estimated a welfare loss of up to €203 million per holiday season due to the location of the turbines (Voltairea, et al., 2017).

2.5.4.6. Visual impact

Property value is often attached to the sense of "place." This refers to the social, cultural and emotional attachment that people have to a particular location or landscape (Cross, 2001). Wind farms can potentially alter the visual appearance and character of any landscape. This can engender negative sentiment towards the wind farm and cause conflict with those wishing to retain the existing aesthetic feel for a particular place. (Fois, Lecis, & Cocco, 2022). Wind energy, unlike traditional types of electricity generation (such as coal plants), involves small-scale, distributed, and location-dependent processes (Wolsink & Breukers, 2007). An unintended effect of this is that visual pollution is diffused throughout a much larger section of the country.

2.5.4.7. Noise impact

Wind farms, depending on proximity, can directly impact the sleep and health of an adjacent community (Abbasi, et al., 2015). Despite significant advances in wind turbine technology aimed at reducing noise emissions, there remains a persistent concern that the noise produced by these turbines can still be disruptive to some individuals, particularly those residing in close proximity to wind farms (Karasmanaki, 2022). In spite of efforts to address noise pollution, wind turbines can still generate low-frequency sounds that may be audible to humans and can potentially affect the well-being and quality of life of individuals living near wind farms (Maffei, et al., 2013). As such, managing the potential impact of noise emissions from wind turbines remains an important consideration in the planning and development of wind energy projects.

2.6. Chapter Summary

The literature emphasizes two critical aspects of wind farm development: effective stakeholder engagement and secondly, how does this lead to increased community acceptance? The foundation of successful wind farm implementation lies in meaningful public participation during the Environmental Impact Assessment (EIA) process. This is a necessary requirement for the project to obtain a social license to operate and thereby reducing the scope for potential conflict. This is particularly relevant as the number of wind farms continue to expand globally, with South Africa also seeing rapid growth in installed capacity of wind power.

The degree to which the wind farm is accepted is a multi-faceted issue and is driven by a variety of factors. It is fundamental to answering the research question. While general support for wind energy technology is strong, local resistance often emerges due to community-level impacts such as noise and visual impact. Research indicates that proximity to existing wind farms tends to increase acceptance over time, and effectively implemented benefit-sharing models can improve the likelihood of acceptance.

Trust emerges as a crucial factor in wind farm development, with the relationship between developers, the EIA process, and communities being fundamental to project success. Critical sources of conflict, particularly visual and noise impacts during the feasibility stage, can be effectively mitigated through transparent public participation processes, this will significantly increase the likelihood of project acceptance and successful implementation.

3. Chapter 3: Methodology

3.1. Introduction

The purpose of this research is to investigate whether the subsequent community acceptance (or lack thereof) of the wind farm reflects the initial sentiments expressed in the project feasibility documentation, specifically EIA records and the associated public participation process. To achieve the research objectives, it is necessary to examine the specifics of the public participation process, and the diverse perspectives of the stakeholders involved. This chapter delineates the research design, data collection methods, data analysis techniques, and ethical considerations employed in the study.

This study seeks to assess how well the views expressed in project feasibility documentation, specifically, the EIA records and public participation component of the EIA align with the acceptance, or lack thereof, that surrounding landowners and the local community currently have for the wind farm. The study seeks to answer the following questions:

I. To what extent does community acceptance (or lack thereof) of a wind farm project reflect the initial sentiments expressed in the project feasibility documentation, specifically EIA records?

II. What are the main concerns raised, and sentiments expressed by I&APs during the EIA process of a proposed wind farm?

III. How do these concerns and sentiments change (if at all) once construction of the wind farm has been completed and it becomes operational?

IV. How can improved engagement with I&AP during the EIA process aid earlier project acceptance?

3.2. Research Method

3.2.1. Qualitative approach

This study follows a qualitative approach. This type of research is particularly valuable in fields where understanding personal experiences and perspectives is a vital requirement in answering the research question (Bazen, Barg, & Takeshita, 2021). Qualitative approaches enable a more profound understanding of experiences and better explain a particular context. This is particularly useful in the field of social science (Telaky & Mwanyoka, 2024), the sphere wherein this study on acceptance levels within two communities falls.

The research focuses on non-numerical data, such as thematic principles and narratives or observations. This allows for insight into the sentiment of the sample group and provides opportunity for nuances and unexpected insights to emerge. This allows for a full understanding of the complexities of the research at hand and better answers the research question. A qualitative research design is also culturally representative (Telaky & Mwanyoka, 2024). This is important in the context of wind farm development in rural areas of South Africa where cultural norms are strong and may influence responses.

Additionally, the qualitative approach is flexible and can adapt to small changes in the research question. It is also a better approach to understand the social and cultural context of this topic. In contrast, quantitative studies are mainly premised on cause-and-effect questions and numeric correlations, with results inferred by way of a statistical approach and often presented as raw figures or as a percentage (Kotronoulas, et al., 2021). In a quantitative study, the research question is focused on the relationship between a small number of variables. However, in a qualitative study, the research questions are typically positioned towards a particular case or phenomena (Chowdhury & Nikhil Chandra, 2021). This differs from qualitative studies that ask open-ended questions, where answers are not easily quantified. The research question does not lend itself to a quantitative approach with an inherent numerical analysis.

3.2.2. Case study design

Case study research involves the in-depth investigation of one or a small number of cases, using multiple sources of evidence such as interviews, document analysis, and observations. This method is considered a better approach to building a comprehensive understanding, than compared to seeking broad generalisations from large samples (Rashid, Warraich, et al,. 2019). This approach provides an ideal framework for examining community acceptance at two operational wind farms in South Africa's Eastern and Western Cape provinces. By focusing on two specific wind farms, rather than all wind energy projects, the study is able to gather detailed data through interviews with landowners and EIA documentation analysis. This allows for the identification of critical factors, such as the construction process and cumulative impacts, which might have been missed in a broader study. Similarly, the comparative design between two wind farms allowed for meaningful insights into why initial EIA predictions differed from eventual community attitudes. It also considers diverse socio-cultural, environmental, and economic factors that influence acceptance levels. This comparative design facilitates a nuanced understanding of why initial EIA predictions might diverge from eventual community attitudes, providing a more holistic view of stakeholder engagement.

Additionally, the multi-case study method strengthens the reliability and validity of the findings, this is because insights derived from multiple cases are more likely to be representative of the broader condition within the community, this makes the research outcomes more applicable to similar contexts. Moreover, this approach mitigates the limitations of single case studies, which often restrict generalizability due to their narrow scope.

The choice between single and multiple case study designs will likely reflect differing research priorities. A single case study offers deep insights into a particular situation. This is ideal for exploring a problem but does limit the ability to generalize. Conversely, a multiple case study enables cross-case comparisons, uncovering patterns and nuances across different contexts. Thus, any research must weigh up the benefits of each and ensure alignment with the study's objectives.

3.2.3. Unit of analysis

The unit of analysis references the primary element under examination in a study. It shows what exactly is being examined. Fundamentally it is the “unit” from which information is gained. In this study, the unit of analysis is landowners located adjacent to wind farm projects. It is crucial that the sample reflects the broader population (Hays & McKibben, 2020). In support of answering the research question, the project development EIA records were also analysed and an analysis performed to fully understand the context of the planning that occurred prior to construction. Determining the unit of analysis can be challenging and requires an understanding of what is being studies. In this case the community, or individuals in the community, made for a better study case than an organisation or process.

3.2.4. Sampling

Sampling in the context of qualitative research refers to the process of selecting the participants that will provide the data necessary to address the research questions. Hays & McKibben (2020:183) define sampling as *"where and how the units of analysis are located"*. For this study, the intent was to select an adequate sample that would result in data saturation. This ended up being six landowners (three from each wind farm project). This was considered an adequate sample size to provide insights into community acceptance of wind farm developments. This allowed for a deliberate selection of participants based on specific criteria - in this case, the criteria were landowners who are directly affected by the wind farms and have experienced the development and construction process from concept through construction and into operation.

The sample size aligns with current qualitative research approaches where the focus must be on understanding as opposed to statistical representation, merely for the sake of it. Sample size should be determined by factors such as the research objectives, the quality of data obtained, and the point at which theoretical saturation is reached (Sechelski & Onwuegbuzie, 2019). Three respondents were chosen from case study one and three from case study two. The respondents had to live within the vicinity of the wind farm. It was not necessary for the respondents to be directly adjacent but rather the compelling criteria is that that they are affected by the wind farm in some form. This could be as positive or negative impact, the only requirement being that there was a clear impact resulting from the project.

3.3. Data Collection

Primary data was collected via semi structured interviews with research participants. Notwithstanding that interviews can be conducted in a variety of ways, methodological rigor and effective reporting remains the core focus. It is important to apply a framework that underpins the data collection approach. In this study, a grounded theory approach was applied. This approach develops and evolves a theory from the data as collected during the research process, as opposed to a theory determining the study. Thus, theory is discovered from data

(Pinsky, Kruglianskas, Maffini Gomes, & Rezaee, 2017; Turner & Astin, 2021). Grounded theory does not dictate a rigid approach to data analysis. Rather, the analysis must be interpretative and free flowing in nature. This chosen approach facilitated an in-depth exploration of the experiences, perceptions, and attitudes of the selected participants. It is thus data-driven (Olenik & Adeoye-Olatunde, 2021). Additionally, grounded theory data analysis starts with coding, where data is broken into smaller parts and labelled to capture meaning. Codes are then compared to identify patterns and variations, then grouped into broader categories (Turner & Astin, 2021). This has been applied in Chapter Four of this study. Similarly, interviews are the most common approach to data generation for this form of data analysis (FitzGerald & Mills, 2022).

Primary data was also collected from the documentation relating to the selected case-study wind farm projects. These documents comprised EIA Reports, including specialist reports, public participation reports, and land use applications. This provided a robust perspective of the perception towards the wind farm from all stakeholders. Crucially, the public participation report tabulates all comments received over a 60-day participation period.

The discussion below is divided into four sections. First, it explains how the case-study projects were selected. Second, it elaborates on the semi-structured interview process, before explaining how the interview participants were selected. Finally, it describes how the interview participants are labelled.

3.3.1. Selection of Case-study Projects

The selection of suitable wind farm projects as case studies for this research followed a targeted approach. The selection was influenced by the researcher's prior professional involvement with various wind farm projects in South Africa. This professional experience and knowledge allowed for relatively easier access to respondents that might otherwise be difficult to obtain.

Certain criteria were applied to identify suitable case-study projects. It was a requirement that the project's EIA and other relevant documentation were publicly available and accessible for analysis. Geographical dispersion across different provinces was prioritized. This was to ensure robust representation of various factors such as socio-economic conditions and differing community dynamics, but also to ensure that there was minimal interaction or cross-pollination between each community. Furthermore, projects of similar size and scope were selected to enable competent comparative analysis. Also, there had to be sufficient individuals within each project's adjacent community who would be willing to participate.

From the pool of operational wind farms in South Africa, two wind farm projects meeting these criteria were ultimately selected for detailed analysis. These projects are located in the Eastern and Western Cape provinces respectively.

Six landowners were contacted as part of the semi-structured approach. The discussions commenced with a brief introduction of the study's context and an explanation of its purpose and rationale. A primary question was posed to initiate a discussion, which was followed by a series of sub questions. The discussions were generally informal, and any information obtained from the conversations that the author deemed to be able to assist in answering the research question was considered.

A structured interview or a formal questionnaire are alternatives that were considered. It was felt that neither of them was suitable for interacting with the responders, for the following reasons: the respondents are farmers who are often busy planting or harvesting throughout the year, leaving little time for filling out surveys. Additionally, emails are not a commonly used medium and would likely remain unanswered. Similarly, a structured approach would not encourage the necessary participation from participants who would feel pressured to limit their responses to the questions posed and refrain from speaking candidly about subjects unrelated to the rigidly designed questions. This would be likely to distort the quality of the information collected.

3.3.2. Semi-structured interviews

Semi-structured interviews were conducted with selected participants from each case study. See Annexure B for a schedule of the interview questions. The interviews lasted for between 18 and 40 minute and were all undertaken telephonically and followed a semi structured approach. This comprised a set of guiding questions that initiated conversation but did not lock the interview into a prescribed structure. Each session was audio recorded and transcribed for use in MAXQDA. Semi-structured interviews allow flexibility whilst also steering the conversation in a particular direction. In-depth answers can still be obtained but there is no sense of the interviewee being interrogated. This method also facilitates an open conversation wherein the interviewee is more likely to share details and opinions that may not be provided if a strict question regime is presented. It is a free-flowing conversation between the interviewer and respondent; there are no parameters that limit the topic of discussion or the relative depth of conversation (Segal, 2015).

Whilst a structured interview process is also a compelling methodology for data collection, it has certain limitations, making the semi-structured approach preferable. These limitations include a lack of flexibility that can make it challenging to engage in tangential conversations or delve deeper into unexpected areas that emerge during the interview. This could result in potential high-yielding information going amiss. There is also the risk that insight is lost with pre-determined questions as nuances are challenging to explore. Similarly, a rigid regime also has the propensity of restricting respondents' ability to truthfully and objectively answer questions as they feel that the forum does not encourage this (Segal, 2015). The interaction of structured interview also has an artificial feel to it, in that the distinction between interviewer and responder is stark, as opposed to an unstructured forum which more resembles a conversation (Segal, 2015).

3.3.3. Selection of interview participants

The "snowball" sampling technique was applied in the selection of interview participants. This technique is appropriate for interview-based studies and entails the identification of initial respondents who are then used to refer other respondents. This is an efficient and effective sampling technique to reach a target population and offers obvious practical advantages in a small-knit community where contact details and approachability was well known (Chowdhury & Nikhil Chandra, 2021).

The selection criteria that was applied was a simple approach that focused on adjacent landowners who were present (directly or indirectly) through the Environmental Impact Assessment (EIA) phase of the respective projects and are currently residing adjacent to the operational phase of the wind farms. This allowed for a recording of how perceptions changed over time. Requisite requirements were geographic proximity to the project, direct experience with construction and operational impacts and willingness to participate in the research. This ensured that participants could contribute meaningfully to the study and provide insights into the evolution of community acceptance from initial EIA stages through to current operations. To ensure that the sample was representative of the broader community of stakeholders affected by wind farm projects, six adjacent landowners were purposefully selected from the local area. This selection aimed to capture a range of experiences, reflecting the diversity of views and attitudes within the community living in proximity to the project site.

Twelve persons met the selection criteria. Unfortunately, a significant number of potential respondents could not partake in the study for a variety of reason. Some were uncontactable, others were deceased, and some were not willing to participate in the study. Ultimately, six landowners (three for each case-study project) met the selection criteria and agreed to participate.

3.3.4. Participant labelling

To protect the identity of the research participants, the case study wind farms are not mentioned by name. Henceforth, the projects are referred to as Wind Farm A and Wind Farm B. Similarly, the individual participants are also not named. Instead, the three participants from Wind Farm A are labelled A1 – A3 respectively; and those from Wind Farm B are labelled B1–B3. The participant labelling is illustrated in Table 1.

Landowner code	Wind farm project	Primary respondent activity
A1	A	agriculture
A2	A	agriculture
A3	A	agriculture
B1	B	Part time agri; business
B2	B	agriculture
B3	B	agriculture

Table 1:Individual Respondent codes

3.4. Data Analysis

A key consideration in this study was maintaining a coherent narrative throughout the report. This can be termed the “golden thread.” This phrase refers to the consistent alignment between the research questions, data collection, analysis, and interpretation of findings.

To ensure this alignment, the coding structure developed in this section serves as the foundation for the thematic discussion in Chapter 4. Each theme identified through the coding process is not only grounded in the empirical data but also directly linked to the study’s objectives and research question. This ensures that the transition from the data to interpretation is methodologically sound.

In Chapter 4, the discussion is organized according to the themes outlined here. This alignment allows for a logical progression from data analysis to interpretation. In doing so, the research traces the development of the respondents' answers through to themes and the broader practical implications.

Following data collection as described above, the collected information is organised for analysis. This study employed two methods of analysis namely, thematic analysis and cross-case analysis. Both are discussed below.

3.4.1. Thematic analysis

The dataset was analysed using a thematic analysis approach. This entails the identification of patterns that can be expressed as themes (Lochmiller, 2021), or the construction of a cohesive story or narrative from the dataset. The narrative should establish a significant correlation between the themes identified in the data and the existing literature (Wood, et al., 2018). The strategy is flexible and effectively suited for the semi-structured study questions used in the data gathering process (Nowell, et al., 2017).

The utilization of thematic analysis to find underlying themes and patterns allows one a deeper understanding of the factors that influence acceptance or rejection of wind farms by a surrounding community, enabling the production of strong and well-founded conclusions (Nowell, Norris, White, & Moules, 2017). The software allows extraction of key themes that answer the research question.

MAXQDA software (Verbi, 2024) was used for the thematic analysis of the dataset. The software has strong analysis features and offers robust data coding and visualisation tools. It allows one to methodically identify and communicate the themes that become evident from the data. This enables the effective presentation of robust findings. Additionally, thematic analysis without software assistance can be extremely time consuming. MAXQDA will speed up this process (Fitkov-Norris & Kochev, 2023).

Although thematic analysis is a popular and well-known method of analysing qualitative data, it has some shortcomings (Lochmiller, 2021). There is significant scope for subjectivity during the identification and coding of themes and this can affect the reliability and consistency of the outcomes (Morgan , 2022). In the context of this report, steps have been taken to address these risks. Direct quotations from participating respondents are included in this report wherever possible and the answers to the questions posed go some way to mitigating subjectivity.

There is also scope for the over-simplification of potentially complex issues and this can lead a researcher to draw erroneous conclusions and linkages. Themes must be methodically shaped and polished through a process of draft and finalised versions (Finlay, 2021). This was mitigated by using MAXQDA coding software that allowed for a more systemic approach to theme development, whereby codes could be effectively tracked and noted. Similarly, an iterative approach, in conjunction with study supervisor allowed for further mitigation.

Additionally, compared to other approaches with more rigorous frameworks, a particular disadvantage of thematic analysis is the tendency for inconsistent or incorrect word use. Evaluating papers that use or claim to use thematic analysis is difficult because of this (Kiger & Varpi, 2020). Again, MAXQDA software allowed for clear definitions of each code. Terms were defined consistently wherever possible.

3.4.1.1. Initial codes

The initial codes are primary codes (EIA records; Public participation; Community acceptance of wind farm; nuisances and wind technology) under each of these codes are sub codes. These are shown in Table 2. In order to identify key themes, similar codes were grouped in order to recognize broader patterns or concepts. Ultimately, this led to the identification of the primary themes that underpin Chapter 4 of this Dissertation.

The preliminary phase of thematic analysis entails the coding procedure. This is the stage at which the data is systematically arranged and prepared for comprehensive analysis and interpretation. To do this, the data is divided into smaller, more manageable pieces that may be more effectively analysed. This facilitates the emergence of first notions or topics and is exploratory in nature. Next, codes are assigned to each segment to represent the main subject or topic of that section. This facilitates the exploration of broader themes and enables more thorough analysis and is the basis for subsequent research (Naeem, Ozuem, Howell, & Ranfagni, 2023). The written transcripts of the interviews are summarised and consolidated into codes that accurately encapsulate the core of the answers. The codes serve as the foundation for full themes: the primary codes are recorded as follows:

I. EIA records
II. Public participation
III. Community acceptance of wind farm
IV. Nuisances
V. Wind technology

In total 25 sub codes were generated in MAXQDA. Table 2 illustrates the full code system applied at this stage of the research. Codes were formulated with appropriate sub codes grouped within. For instance, within the primary code of "community accepts wind farm," there are 4 sub-codes: "*local community uplift*"; "*need for more wind projects*"; "*support level increasing…*" and "*negative community support.*" *T*he move from sub codes to initial codes to broader themes was fundamental to developing a coherent narrative that accurately represents any underlying trends. Furthermore, Figure 1 depicts the code system graphically using a hierarchical tree structure with branches to show primary and sub codes. Using the MAXQDA software, codes and sub-codes were allocated to respondent answers. For instance, if an answer mentioned the "need for more wind projects in the country", then the relevant code would be applied and frequency would increase by 1.

Code System	Memo	Frequency
Code System		65
Wind technology		0
Energy security		1
Support for renewable energy		10
negative support for wind technology		1
Community accepts wind farm		2
Local commercial uplift		3
Need for more wind projects		2
Support level increasing as project progresses		5
negative community support		1
EIA records		0
Anti proposed project during EIA		0
Clear optimism		4
Support of proposed project during EIA		1
Town hall public participation		2
Public Participation		0
Meaningful consultation		4
Negative attitude to PP		0
Positive attitude to PP		5
Stakeholder satisfaction		5
Nuisances		0
Crime		1
Livestock and gate issues		4
No impact on farming		4
Noise		3
Traffic		2
impact on crop flying		1
major construction impact		4

Table 2: Primary codes and associated sub-codes

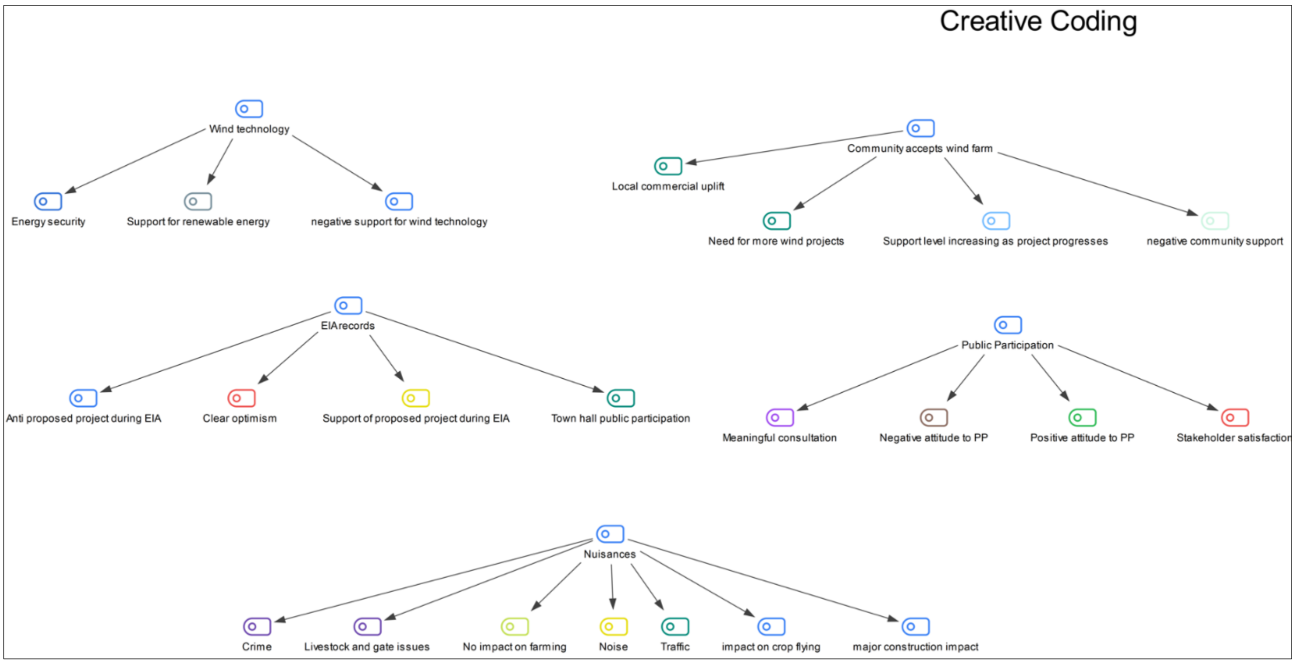

Figure 1: Visual representation of code system

3.4.1.2. Theme identification

In order to identify key themes, similar codes were grouped in order to recognize broader patterns or concepts. The groups were then refined into distinct themes that captured the major ideas that speak to the research question. The primary objective of theme identification is to convert coded data into meaningful insights that seek to answer the research question

3.4.2. Cross-case analysis

The methodology included a cross-case analysis between the two projects, allowing for a comparison of the two wind farm projects. Cross-case analysis is a research method where several cases are compared to find thematic patterns and variations, it is an effective method to link lessons from local cases to coherent national or global cases (Beauchamp, Moskeland, etal., 2019).

By looking at the adjacent landowners of the respective wind farms through a comparative lens, trends or differences were extracted. The approach allows for a fuller understanding of why certain outcomes happen by applying a comparative lens. This allows for a trends or similarities to emerge that might not be apparent when analysing cases individually.

3.5. Reliability and validity of data

The relationship between interviewer and interviewee is crucial in qualitative research. Data has been gathered from only six sources; this presents various limitations. Firstly, it must be considered whether the findings are transferrable to other settings or contexts beyond the study sample and therefore be considered as useful. Whilst six respondents are a somewhat small sample size, transferability is still possible. To strengthen the study, replication across the two wind farms (in different provinces of the country) was undertaken. This allows for better transferability of findings by showing consistency (or lack thereof) across the different contexts. None of the respondents were previously known to the researcher. This could present positive or negative consequences. Knowing one another makes data collection easier, but the quality of the data may be compromised because the respondents may provide answers that they believe the researcher wants to hear. Conversely, trust concerns may occur if the parties do not know one other (Alam, 2024).

The participants are diverse, and this allows for different perspectives and experiences, ultimately strengthening the transferability of findings. Secondly, the context of the study is similar to other wind farms within South Africa; these also being located in rural settings with similar land use and socio-economic conditions. This is positive for transferability.

Further limitations are the willingness and available time of the respondents to fully and carefully answer the questions. One potential respondent made it clear that he did not want to be involved in the study. Similarly, it was sometimes challenging to obtain contact details from neighbours or community members. Whilst all the active respondents were willing and able to engage, the risk remains that brevity is applied to reduce time wasting. Although English was not the first language for all of the respondents, the language barrier is not a weakness for this study.

3.6. Data saturation

Data saturation is a fundamental principle for measuring the adequacy of obtained data in qualitative research (Hennink & Kaiser, 2022). Data saturation is achieved when no new themes or insights are emerging from the data. In this study, saturation was iterative in the sense that existing codes were cross-referenced against new potential themes on an ongoing basis until it was clear that no new thematic trends were emerging. This indicated that the data had sufficiently covered the research question. As the data was coded, themes were continually compared to existing categories until a level of redundancy was achieved and further data collection on analysis was unnecessary (Saunders, Sim, Kingstone, & Baker, 2018). Although the sample size was small, major thematic patterns emerged across the spectrum and thus a degree of saturation was achieved. This is key in the context of applying the grounded theory approach wherein theoretical saturation is fundamental to data completeness.

The ideal sample size is an unresolved issue (Chowdhury & Nikhil Chandra, 2021). The gold standard for a qualitative sample size is to interview until saturation. This can be defined as the process of conducting interviews one after the other until all concepts are repeated multiple times without a new concept, or a novel theme being introduced into the conversation. Similarly, in the context of a grounded theory approach, saturation can be defined as "*the point in coding when you find that no new codes occur in the data*" (Saunders, et al., 2018: 12).

3.7. Ethical considerations

All research that involves human participants must have a clear and relevant justification and must be conducted in strict adherence to ethical standards. This is vital to ensure the protection and autonomy of all participants Respondents must freely provide the data requested and be properly informed on the research including its risks, benefits, and consequences. Clearly, agreement on participating must be given without any coercion or convincing (Taquette & da Matta Souza, 2022). As such, this section addresses the ethical measures taken to obtain informed consent, maintain confidentiality, and safeguard the privacy of participants. Additionally, potential biases and limitations, including the historical nature of the study and the impact of a small sample size, will be transparently discussed to provide a comprehensive account of the research scope. Using a semi-structured research design, certain predetermined questions were asked with the intention of facilitating an informal dialogue that allowed for open-ended responses. Several ethical considerations were taken into account when using this approach. Before collecting primary data from research participants, clearance was obtained from the Faculty of Engineering and the Built Environment's Ethics in Research Committee. See Annexure C for ethics clearance approval. Furthermore, prior and informed consent was obtained from the identified respondents before proceeding with data collection. The Informed Consent Form is attached to this research report as Annexure A. During the process, respondents were assured that their identity would be protected. Respondents are not mentioned by name in this report. Instead, they are labelled as discussed in section 3.3.4. It was made clear that each person had the freedom to withdraw from the study at any time without any negative consequences.

None of the respondents were previously known to the researcher There was no evidence of any real or perceived power imbalance between the researcher and the participants, nor was any patent power imbalance identified. All of the respondents were long-standing and established farmers in the community and did not need to take part in the study for any financial, or other, reasons. Particular care was apportioned to data transparency and care of data. It was communicated upfront and transparently what the data would be used for and how it would be protected. Security was paramount and the data was saved on a secure device. At no stage was any of the data compromised. Careful consideration has been given to the retention of data and it be retained for a period of five years following the completion of the study, in accordance with institutional guidelines. This will allow for potential future audits.

After this period, all data will be permanently deleted or destroyed using secure methods to ensure that no personal or sensitive information can be recovered.

Ethical reflexivity is important, and the researcher remained aware of personal assumptions and potential biases throughout this study. This may include any assumptions that were in place prior to undertaking the research that would have influenced data collection and interpretation. A proactive approach is required to prevent this and preserve the credibility of the research. This may include prolonged and substantive engagement, triangulation, where information is obtained from a variety of sources and the use of peer debriefing (Bellalem & Mirza, 2023).

During the interview stage, any cultural norms that may have been applicable in the setting were acknowledged. The respondents are rural based, from a farming community, many have farmed in the area for generations. The research approach and chosen questions paid respect to cultural differences. There was no potential, or real, conflict of interest that was made clear at any point. It is not anticipated that feedback, other than the final report, is provided to participants post the conclusion of the study.

3.8. Chapter summary

In this chapter, the research design for investigating public attitudes toward wind farms among adjacent landowners is outlined. The chosen approach is a semi-structured design involving interviews with six specific landowners. The decision to adopt a semi-structured approach was rooted in the nature of the target respondents—busy farmers with limited time, and the desire to encourage open dialogue beyond the constraints of a structured interview or questionnaire. The strength of this design lies in its flexibility, allowing for a nuanced exploration of attitudes and concerns. However, potential weaknesses include the limited sample size, which raises questions about the generalizability of findings. To address this, efforts were made to select a diverse group of participants, enhancing the transferability of results.

The unit of analysis is individual landowners residing near to, or adjacent to a specific wind farm. The participants were selected based on their proximity to the wind farm, with considerations given to their predominant land use, revenue from the wind farm, and overall satisfaction with it. While acknowledging the limitation of a small sample size, efforts were made to ensure the diversity of participants, enhancing the transferability of findings. The decision to interview until saturation point was reached adds depth to the qualitative exploration, compensating for the relatively modest number of participants.

The data collection technique involves both predetermined questions and informal dialogues, allowing for open-ended responses. Thematic analysis was employed to identify patterns and themes within the qualitative data, steering away from quantitative tools due to the inherently non-numeric nature of the data. Clear and informed consent was obtained, ensuring the anonymity and voluntary participation of respondents. Attention was given to power dynamics, cultural norms, and potential bias on the part of the researcher. Transparency and security measures were implemented to safeguard the collected data.

In summary, the research design chapter lays the foundation for a qualitative investigation into public attitudes toward wind farms among adjacent landowners, emphasizing flexibility, ethical considerations, and efforts to enhance the transferability and reliability of the study's findings.

4. Chapter 4: Data Analysis and findings

4.1. Introduction

This chapter presents a comprehensive discussion of the research findings, structured according to the coding framework outlined in Section 3.4. By maintaining this thematic structure, the chapter will ensure a coherent analytical thread, this can also be referred to the 'Golden Thread.' Ultimately, this will connect the data analysis with the broader research objectives and literature. The collected data, seeks to understand and evaluate the degree to which project feasibility documentation, such as EIA records and the public participation section of the EIA, corresponds with the acceptance of a wind farm by the surrounding landowners and the community.

The preceding chapters have outlined the theoretical framework, research design, and methodology employed in this investigation. In this chapter, the focus shifts towards interpreting the data in order to uncover patterns, themes and insights that illuminate the complex interplay between public perspectives and the development of wind energy infrastructure.

4.2. Case-Study Wind Farms

It is important to provide context for each case study wind farm before the results of the study are presented.

4.2.1. Wind farm A

Wind farm A is located in the Western Cape. All of the respondents were telephonically contacted and interviewed by way of an unstructured interview. The conversations ranged in duration from 24 minutes to 35 minutes. Wind Farm A has been operational for eleven years and thus several individuals who were originally targeted for an interview were no longer living in the area or had been living in a different part of the country when the project was built. Others were unreachable for unknown reasons.

The three participating respondents are active commercial farmers. All three respondents have lived in the area for several generations. They farm a combination of wheat, barley and oats, sheep and cattle. This is the common land use in the area. The wind farm project consists of 47 turbines affecting less than 3 percent of available farmland. No vulnerable groups or communities reside in the area. The following discussion summarises the issues raised by the respondents, together with the researcher's initial impressions. A deeper thematic analysis follows in section 4.4.

4.2.2. Wind farm B

Wind Farm B entered commercial operation in 2016 and is located in the Eastern Cape. There are six operational wind farms and many more under development and being planned in the region. The first of these was built in 2013.

All three of the respondents are farmers. Two of the respondents consider themselves generation farmers, having lived in the area for several generations. The third respondent is relatively new to the area and farming is a leisure activity for this respondent. The wind farm project consists of 56 turbines affecting less than 3 percent of available farmland. The closest township is located approximately 10 kilometres away. The following discussion summarises the issues raised by the respondents, together with the researcher's initial impressions. A deeper thematic analysis follows in section 4.4.

4.3. Summary of Findings

Respondent A1 raised no issues whatsoever with regard to the construction of the wind farm. There were only positive aspects expressed. This respondent was positive that security had improved and that infrastructure, including access roads, was in a better condition than prior to the construction of the wind farm. The current manager of the wind farm is "approachable" and "often assists in security matters". Similarly, the main access road toward the wind farm was tarred during construction and this has positively affected the community.

A1 mentioned that visual impact was originally a minor concern, but this is no longer the case, and that "it is now like going to the sea" inferring that one becomes used to the existence of the wind turbines and the visual effect is no longer an impact. Respondent A1 expressed the notion that one must be open-minded to the wind farm and that a positive mindset is helpful. The closest wind turbine is 500m to 600m to respondent A1's house. Similarly, respondent A2 did not provide any negative feedback on the construction process, and explicitly communicated that no crime or negative socio-economic impacts were observed. Also, respondent A2 did not raise any significant negative impacts and has supported the project from inception. A2 does not understand why there are not more wind farm projects being built in the country. Respondent A3 currently, and has from inception, supported the project. Small nuisances arose during construction, but it was communicated that a reasonable approach must be applied and that it was understood that any construction process would ordinarily lead to some level of temporary discomfort. The respondent is supportive of wind technology and the project itself.

Respondent B1 was highly critical of the construction process and did not feel that the public participation process adequately prepared him, or his family, for the construction period. This respondent clearly displayed a negative perception towards developers and mentioned several times the power dynamic between wind farm builders, contractors (and sub-contractors) and the landowner and the fact that this respondent was "bullied" on several occasions.

The respondent B1 identified several concerns regarding the wind farm's impact on his property and quality of life. These included damage to a water dam that was left in disrepair after the construction period, the moving of a boundary fence by sub-contractors to accommodate road expansion, and ongoing noise and visual disturbance from the wind turbines. The visual impact was a particular point of contention due to the turbines' proximity to his farm boundary, with the nearest turbine approximately 500m from his residence. The respondent specifically described the turbine noise as similar to "a Boeing airplane," especially noticeable during still nights, noting that these impacts would persist throughout his residency on the farm.

The other two respondents, B2 and B3 were both generally supportive of the project and did not communicate any significant negative aspects that detracted from their overarching support for the project. Increased traffic and incidents of bad driving on district roads and not closing farm gates were the only issues raised. B2, however, did speak at length on the lack of accountability from the wind farm owners in the area in regard to socio-economic benefits that had previously been promised to the community. Specifically, the establishment of community trusts and the disbursement of funds to the community. It was made clear that some wind farms were good at this and others less effective.

4.4. Summary of EIA documentation

Before doing the thematic analysis, it is useful to provide a summary of the EIA documentation of the two wind farm projects which were examined as part of the data collection process. Using the MAXQDA data analysis tool it was possible to code and extract important themes from the EIA records. The application allows the user to import documents, such the EIA records, for sensitivity analysis purposes as well as the respondent interview transcripts. In this section, the EIA records and respondent population were also manually reviewed and summarised. This allows for thematic analysis, which is presented in Section 4.4. The EIA documentation is, by law, publicly available and must be accessed online. However, due to the length of time since these documents were released, it is unlikely that this is still the case. The author holds a copy of all EIA documentation, which can be made available on request.

The following public participation was undertaken by the environmental consultants at both wind farm projects.

- Notifications were published in various local, regional, and national newspapers.
- On-site notices were posted in prominent locations.
- Written notifications were sent to identified stakeholders and affected landowners.
- A comprehensive database of I&APs and key stakeholders was compiled and maintained.
- Stakeholders included government authorities, non-governmental organizations (NGOs), community-based organizations (CBOs), local residents, and other interested parties.
- Ongoing consultation was undertaken. This included telephonic communication, focus group meetings, and one-on-one meetings with key stakeholders.
- A public feedback meeting was held on 7 October 2010 for Wind Farm B, and on 21 May 2010 for Wind Farm A.
- Both EIA reports were made available for public review for two periods of 30 days each.

The following is a summary of the primary issues raised as part of the EIA documentation for Wind Farm A.

I. *Construction nuisance*: Noise concerns during construction required specialised input and mitigation strategies. Concerns were raised about the impact of turbines on the natural landscape and tourism in the adjacent local town which attracts significant tourism
II. *Environmenta*l: Potential negative impacts on bird populations and other avifauna species were highlighted.
III. *Heritage and cultural:* no issues were raised at wind farm A.
IV. *Regulatory and compliance problems*: It was requested by a provincial biodiversity entity that the project adhere to local and national environmental regulations. This is a normal EIA condition.
V. *Social and Economic Impact:* it was recommended that community trusts be established to support local socio-economic activities, as well as potential negative effects on tourism. The following question was raised in regard to tourism from a respondent in Wind Farm A: "with respect to the visual and noise impacts, 'town x' is a tourist town. Have there been any studies on the effect of wind farms on tourism in for instance Spain and Germany? Has the impact been positive or negative?" [town name removed for identification purposes]. The answer provided by the environmental consultant was that "in the majority of international cases, the impact has been positive".

The comments and response report for Wind Farm B, as an Annexure of the final EIA report, included over 120 pages of concerns raised by interested and affected parties. Considering the number of national and provincial entities mandated to comment, community members and national or regional conservation groups, the high number of comments is considered normal for a wind farm EIA.

The primary isues raised as part of the EIA documentation for Wind Farm B are summarised below.

I. *Visual:* There was significant negative sentiment expressed against the proposed development; "*the game farming industry is dead set against monitoring masts and wind energy facilities in their areas*." The following was also submitted as a written comment; "we *are not interested in this wind energy facility. It will have a negative impact on our farm. It's right on the border of our farm x, it cuts into our boundary, and it will impact on the entire game farm industry in our area. So, this is our biggest concern, and we do not support* *it.*" [farm name removed for identification purposes]. There was a cohort of negative sentiment expressed mainly from surrounding landowners who were involved in the hunting industry.

II. *Environmental:* The EIA report indicated a potential high significance of bird collisions, reduced to moderate with mitigation. The regional conservation entity provided the following conclusion to their report: *"…therefore, based on the reports provided, and the absence to demonstrate how recommendations and proposed mitigation measures have affected the proposed development, … does not support the application in its current form."*

III. *Heritage and cultural:* There was significant concern raised on the cumulative effect of several wind energy facilities in the local area: "*we currently have four sites being investigated by four different wind energy developers; this poses a significant risk to the existing regional landscape*."

IV. *Socio-economic impacts:* This was also raised as a major concern by commenting community members: "*we have been told by tour operators who bring clients and business into our game farming areas that they would stop doing so if wind energy facilities are built in these areas. Wind turbines on the landscape are not regarded as being an African Experience."*

4.5. Thematic analysis

Five key themes were identified across the two wind farm projects. The themes, and their significance are outlined here.

I. Positive attitude towards renewable energy as a technology type.

The support, or lack thereof, for a technology type can provide an indication of the level of support for a wind farm project. It is therefore a fundamental requirement for a full understanding of community acceptance. This view is supported by the literature: communities who are supportive of wind power, as a national resource, have been shown to be likely to be willing to accept wind farm in a community. The converse has also been shown to be true (le Maitre, Ryan, & Power, 2024).

II. *Level of acceptance of the wind farm projects.*

The study seeks to evaluate the current degree of community acceptance across the two wind farm projects; hence this theme is central to the research question. There is significant literature on the importance of community acceptance in project success. (Ruddat, 2021; Langer, Decker, Roosen, & Menrad, 2016; Zaunbrecher & Ziefle, 2016). As stated by le Maitre, Ryan, & Power (2024:10): "living *close to a wind farm is expected to become an increasingly common experience for non-urban communities in regions with high wind potential."* Community acceptance of wind projects is therefore an increasingly important factor of the development process.

It also allows one to interrogate whether successful stakeholder engagement was undertaken. The level of acceptance would confirm that the projects have gained a "social license to operate." Similarly, the levels of acceptance would reflect the positive shift in public perception towards renewable energy. Understanding the factors informing this level of acceptance allows one to answer the research question and provide conclusions and recommendations to improve the EIA process going forward.

III. *Impacts associated with wind farm construction.*

Although secondary in nature to answering the core research question, this theme is important in the context of project acceptance. This is because recognizing these impacts is important as they should be identified in the EIA records as temporary but necessary aspects of the project's development lifecycle. How these impacts are managed can significantly influence community sentiment. Similarly, if these impacts are appropriately managed and mitigated during construction, there will be an increase in trust and support for the project.

The construction phase of a wind farm is almost always disruptive and can affect local communities through increased traffic, dust, and noise as well as socio-economic issues such as crime (Karasmanaki, 2022; Fois, Lecis, & Cocco, 2022; Sunak & Madlener, 2016). The long-term acceptability and community perception of the project depend on the management of these impacts. So, if these concerns are addressed in early-stage development, this will foster trust and transparency between the project and the community. Understanding these immediate impacts of wind farm development is crucial for future planning. Understanding construction activities, and potential nuisances emanating from these activities are critical to understanding community acceptance of the project. This is because construction is the most impactful stage of any project. It is also contextually valuable to understand if the EIA records prepared the local community for these impacts.

IV. Level of community support reflected in EIA records.

The level acceptance of the proposed wind farm, as compared to the mood shown in the EIA records, is crucial to understanding and answering the research question, namely, do current acceptance levels reflect the initial sentiments of the EIA records. This theme unpacks the sentiment shown in the studied records. The research question is explicitly addressed by this theme and is therefore significant. Similarly, the effectiveness of the EIA and public participation procedure will be largely validated by community acceptance today.

V. Effective public participation across both projects.

This is a fundamental theme in the context of answering the research question; community support or opposition during the EIA phase is communicated by way of public participation and it is therefore critical to fully understanding the effectiveness of the PP process. The theme will unpack nuances such as was the process fair and equitable, and were adequate timeframes and opportunities for participation provided to interested and effected parties? Effective public participation is a key driver of success of large infrastructure projects (Janhunen, Hujala, & Pätäri, 2017) and enables a community to articulate their concerns (Peterlin, C. Kross, & Kontic, 2008; Ma, 2022). The literature is clear that high levels of wind farm acceptance is linked to increased participation in decision making processes (Brannstrom, Leite, Lavoie, & Gorayeb, 2022). It is therefore important in determining whether the EIA was an effective instrument in effecting project acceptability.

4.5.1. Wind farm A

4.5.1.1. Theme 1: Positive attitude towards renewable energy as a technology type

	A1	A2	A3
Wind technology	0	0	0
Wind technology > Energy security	1	0	0
Community accepts wind farm	0	0	0
Community accepts wind farm > Need for more wind projects	0	1	1
Community accepts wind farm > Support level increasing as project progresses	1	1	3
Nuisances	0	0	0
Nuisances > No impact on farming	1	2	1
SUM	3	4	5

Table 3: Prevalence of codes relating to wind farm attitudes.

Respondent A1 is extremely bullish on renewable energy and is of the opinion that more wind and solar energy projects should be built around the country going forward. The respondent has an extremely forward-looking view on renewable energy and is of the view that extra wind farms would quickly solve load shedding. Similarly, respondent A2 is extremely positive towards the notion of renewable energy and when asked the question: "*Do you agree that the country requires significant new capacity, of all technologies. Does this factor into your support (if provided) of the project?"* answered "absolutely, we need to build more farms". This respondent went on to say they cannot understand why there are not more wind farms being installed in the country. Respondent A2 commented that in Norway, Denmark and other European countries, wind farms are considered a common thing, that can often *"provide power for small communities and that the rest of the world is well ahead of us"*. Respondent A2 also commented that the only issue with renewable energy is that solar and wind must be "*built in tandem in order to have sufficient power for a twenty-four-hour period"*. Maitre, Ryan, & Power (2024) explored this sentiment in detail. They found that community members who live near an operating wind farm or who live beyond the 2 km 'near-neighbour zone' are more likely to support extra development.

4.5.1.2. Theme 2: *Acceptance of the wind farm projects*

	A1	A2	A3
Community accepts wind farm	0	0	0
Community accepts wind farm > Local commercial uplift	0	0	0
Community accepts wind farm > Need for more wind projects	0	1	1
Community accepts wind farm > Support level increasing as project progresses	1	1	3
Nuisances	0	0	0
Nuisances > No impact on farming	1	2	1
SUM	2	4	5

Table 4: Prevalence of codes relating to wind farm acceptance levels.

The community's nearly unanimous endorsement of the project corresponds with the original EIA's predictions. Respondents A1, A2 and A3 all noted that farming activities continue unabated once construction has concluded. A1 commented: "*looks at these giants here and they are doing a positive job, at sunset and sunrise they look nice*". Respondent A3 referred to the wind turbines as "*angels looking over the farm.*"

The consensus among the respondents for wind farm A shows that there is high degree of *acceptance* of the wind farm project. All three respondents accept the wind farm as an operating entity within the community. None of the respondents raised concerns about the environment. This is likely due to the fact that, as landowners, they would only become aware of these problems through firsthand experience. Should this fail to occur, the respondent is unlikely to view it as a problem worth bringing up. Analogously, this would suggest that there are few environmental problems because there was no direct exposure.

4.5.1.3. Theme 3: *Impacts associated with wind farm construction*

	A1	A2	A3
Nuisances	0	0	0
Nuisances > Crime	0	0	0
Nuisances > Livestock and gate issues	0	0	1
Nuisances > No impact on farming	1	2	1
Nuisances > Noise	2	0	0
Nuisances > Traffic	0	0	0
Nuisances > impact on crop flying	0	0	1
Nuisances > major construction impact	1	0	1
SUM	4	2	4

Table 5: Prevalence of codes relating to wind farm construction nuisances.

A3 showed support for the project but noted that "*crop spraying was no longer allowed*." Again, this did not diminish overall support for the project: this was a common sentiment whereby overall support was shown alongside identified construction nuisances. A1 made reference to significant noise impact during construction.

4.5.1.4. Theme 4: Level of community support reflected in EIA records

A sentiment analysis exercise of EIA records was carried out using MAXQDA software. Codes for "positive", "neutral" and "negative" were applied to both wind farm EIA records. The results are shown in Table 6 below. For instance, in the wind farm A EIA records, there were no occurrences of negative sentiment recorded in the documentation, there were 4 records of neutral sentiment recorded and 6 records of positive sentiment shown by commenting parties. Additionally, sentiments on specific issues were coded. In this regard, there were 5 code records for visual impact, 6 for impact on tourism and 4 codes for environmental concerns. Planning concerns were not raised in the EIA records.

A clear theme emerged around interested and effected parties showing a level of scepticism or low-level positivity towards the project. The term "cautious pessimism" has therefore been introduced as an outcome of this study. This was mainly driven by a lack of understanding (noting that the objective of an EIA process is to increase these understanding levels).

	Wind Farm A Final EIA Report
Negative	0
Negative > visual	5
Negative > tourism	6
Negative > Environmental	4
Negative > planning	0
Neutral	4
Positive	6
SUM	25

Table 6: Code matrix depicting sentiment in the Wind Farm A Environmental Impact Assessment

4.5.1.5. Theme 5: Effective public participation shown

	A1	A2	A3
Public Participation	0	0	0
Public Participation > Meaningful consult	0	1	0
Public Participation > Negative attitude t	0	0	0
Public Participation > Positive attitude to	0	0	1
Public Participation > Stakeholder satisfa	0	1	0
SUM	0	2	1

Table 7:Prevalence of codes relating to public participation at wind farm A.

Meaningful consultation was shown by respondent A2. No responses were provided that showed negative sentiment towards the implemented public participation process. Similarly, A3 showed a material positive attitude towards public participation.

4.5.2. Wind Farm B

4.5.2.1. Theme 1: Positive attitude towards renewable energy as a technology type

	B1	B2	B3
Wind technology	0	0	0
Wind technology > Energy security	0	0	0
Community accepts wind farm	0	0	0
Community accepts wind farm > Need for more wind projects	0	0	0
Community accepts wind farm > Support level increasing as project progresses	0	0	0
Nuisances	0	0	0
Nuisances > No impact on farming	0	0	0
SUM	0	0	0

Table 8: Prevalence of codes relating to wind farm attitudes at wind farm B.

Respondent B1 indicated a mixed attitude towards renewable energy as a whole and is of the opinion that "*green energy*", whilst one component of the energy mix, is not the panacea that it is often made out to be. Scepticism was at the core of this respondent's response. This attitude is based on the acknowledgement that there is a role for fossil-fuelled power generation going forward and an acknowledgment that fossil fuels have powered industrialisation across the world. It was remarked that "*marketing*" has played a significant role in the mass adoption of renewable energy globally. Similarly, respondent B1 noted that the supply chain of wind turbines includes fossil-fuelled industrial processes.

Respondent B2 expressed strong support for renewable energy and acknowledged the need for new power sources in the country. There were no concerns raised about the suitability of wind technology.

4.5.2.2. Theme 2: *Acceptance of the wind farm projects*

	B1	B2	B3
Community accepts wind farm	0	0	0
Community accepts wind farm > Local commercial uplift	1	1	1
Community accepts wind farm > Need for more wind projects	0	0	0
Community accepts wind farm > Support level increasing as project progresses	0	0	0
Nuisances	0	0	0
Nuisances > No impact on farming	0	0	0
SUM	1	1	1

Table 9:Prevalence of codes relating to acceptance levels at wind farm B.

The community's nearly unanimous endorsement of the project corresponds with the original EIA's predictions. The following anecdotal evidence is the basis for acceptance. Respondent B3 spoke of the commercial uplift that the local town has experienced due to several wind farms being located in the local area. The respondent noted that the local hotel is extremely busy and new shops have been opened. Local socio-economic reasons were also mentioned by B2 as being a net positive for the local community.

There was also a clear acknowledgement that the wind farm projects did not interfere with farming activities. B2 noted that the "*turbine footprint is small*". B3, when asked if the wind farm negatively affected him, responded: "*9000 % better, the only issue is gates being left open*."

The consensus among the respondents for wind farm B shows that there is a high to moderate degree of acceptance. Two of the three respondents showed clear acceptance and support, whilst one respondent (B1) noted the positives but was also scathing of construction impacts, the behaviour of contractors and was undecided on the merits of the type of technology.

4.5.2.3. Theme 3: *Impacts associated with wind farm construction*

	B1	B2	B3
Nuisances	0	0	0
Nuisances > Crime	0	0	1
Nuisances > Livestock and gate issues	2	0	1
Nuisances > No impact on farming	0	0	0
Nuisances > Noise	1	0	0
Nuisances > Traffic	0	2	0
Nuisances > impact on crop flying	0	0	0
Nuisances > major construction impact	1	0	1
SUM	4	2	3

Table 10: Prevalence of codes relating to construction nuisances at wind farm B.

B3 noted that gate opening, and livestock wandering were significant issues (although this did not diminish the overall support shown for the project). B3 also noted that construction was a "*big shock to the system.*" B1 made reference to significant noise impact during construction. In general, B2 was in favour of the project in every way. The one adverse effect that was brought up was the rise in traffic brought on by the addition of more workers in the region. This level of concern would be classified more as a nuisance than as a full issue. During the building phase, responder B2 had no concerns with the project.

4.5.2.4. Theme 4: *Level of community support reflected in EIA records*

A sentiment analysis exercise was carried out in MAXQDA. Codes for "positive" "neutral" and "negative" were applied to both wind farm EIA records. A clear theme emerged around interested and effected parties showing a level of scepticism towards the project. This was mainly driven by a lack of understanding (noting that the objective of a EIA process is to increase these understanding levels). Outright rejection or negative sentiment was limited to groups representing hunting interests near Wind Farm B.

There were 4 expressions of outright positivity shown in the Wind Farm B EIA. The Social Impact Assessment component of the EIA concluded, clearly, that no landowners opposed the proposed project. Several mitigation measures were suggested, mainly around local employment and business opportunities.

	Wind Farm B Final EIA Report
Negative	7
Negative > visual	0
Negative > tourism	1
Negative > Environmental	3
Negative > planning	5
Neutral	4
Positive	4
SUM	24

Table 11: Code matrix displaying sentiment in the wind farm B EIA..

4.5.2.5. *Theme 5: Effective public participation shown*

	B1	B2	B3
Public Participation	0	0	0
Public Participation > Meaningful consult	1	2	0
Public Participation > Negative attitude t	0	0	0
Public Participation > Positive attitude to	2	0	2
Public Participation > Stakeholder satisfa	1	1	2
SUM	4	3	4

Table 12: Prevalence of codes reflecting public participation at wind farm B.

Satisfaction with the degree of consultation was expressed by respondents B1 and B2. No responses were provided that showed negative sentiment towards the implemented public participation process. Similarly, B1 and B3 showed a material positive attitude towards public participation. Respondent B3, in particular, noted the town hall sessions and the successful implementation of the EIA process.

4.6. Cross-case analysis

This section will provide a cross-case comparison of the two wind farms. The similarities and contrasts are recognized and explained, as well as any major themes that may arise. It is important to note that the themes discussed in Section 4.5 are purposely different from the primary themes outlined in Section 4.4. This distinction is deliberate. Section 4.4 presents the thematic analysis of the two case study projects and focuses on the primary themes that emerge directly from the coded data. These themes reflect the specific experiences and sentiments of participants within each project context. Section 4.5, however, adopts a comparative approach. The purpose of this section is to identify and discuss overarching patterns, both common and different between the two case studies. As such, the themes in Section 4.5 are not a repetition of those in Section 4.4.

This approach is consistent with the structure of a cross-case analysis, which aims to move beyond individual case findings and to focus on comparative insights

Although both projects are governed by the same political landscape and policies around energy and wind farms, there are important nuances that must be recognised. These include differing cultural norms, land use types, density of surrounding wind farms and common first language.

An analysis of project and EIA documentation has been done and the results synthesised into a cogent and summarised view of the attitude from adjacent landowners towards the project during the feasibility phase. This data was then compared to the results of the structured interviews to draw conclusions linked to the research question, namely, "to what extent does community and adjacent landowner acceptance of a wind farm align with project feasibility documentation including EIA records."

4.6.1. Common themes across the two wind farm projects:

The analysis revealed the respondents' overall approval and acceptance of wind farms, across both projects. There was, however, universal agreement that the construction period caused anxiety and undue stress for the local community. The public participation process of the EIA was effectively carried out at both wind farms and there was common agreement on this. Similarly, it was thematically unanimous that the operating wind farms did not negatively affect the community at present (i.e. during the operational period currently in place).

Analysis of sentiment within the EIA records did not fully correspond with community acceptability of the wind farm projects and the key theme extracted from these documents was one of “cautious pessimism.” This term applies to both Wind Farm A and B wherein interested and effected parties, whilst not outright negative, did display scepticism towards a new development within the community and asked several negatively inclined questions around issues such as visual and noise impact and other construction-related nuisances. The four common themes that transpired from the cross-case analysis are discussed below.

I. Cautious pessimism

Cautious pessimism was strongly displayed in both wind farm EIA records. Interested and effected parties showed a moderate to neutral sentiment (or low-level positivity) towards the projects.

There was no evidence provided by any of the respondents that showed a clear outright negative sentiment to the EIA process. Clear optimism, as a code, was referenced four times. It must also be noted that across both Wind Farm A and Wind Farm B there was evidence provided of the length of time between this study and the EIA having taken place. The period of time may have affected the findings.

II. Public participation

The cross-project accord confirms that public participation was carried out across both projects in an effective manner and links the public participation process documented in the EIA with current community sentiments. This confirmation indicates that the stakeholder engagement strategy was well implemented and had the desired positive impact. Again, the literature confirms the link between effective public participation and a successful planning process (Janhunen, Hujala, & Pätäri, 2017; Liu, Bouman, & Perlaviciute, 2020; Solman, Bush, Smits, & van vliet, 2021). This alignment between past records and present acceptance supports the thesis that current community acceptance reflects the sentiments expressed during the project's feasibility stage. There were seven codified instances of negative sentiment flowing from tourism across both projects’ public participation processes. This is probably due to the fact that both projects are located within tourism areas (hunting and coastal). Note however, that the negative sentiment displayed here is not outright hostility but rather a cautious questioning of a perceived impact.

III. Wind energy as a technology type

Both communities appeared to favour wind energy as a clean, renewable energy source. Despite differences in other aspects, both communities recognised the positive impact of wind farms (as a technology type). Load shedding was front of mind when the study was undertaken, and thus any new energy technology was likely to be supported. Renewable energy was thus supported as a clear “forward-looking” technology.

Logically, a respondent that is positive towards the concept of renewable energy will likely be more supportive of a wind farm project. The literature, however, does not necessarily support this thesis, with a clear gap shown between broad public support for wind energy and the level of local community support (Janhunen, Hujala, & Pätäri, 2017; Colvin, Witt, & Lacey, 2016; Klok, Kirkels, & Alkemade, 2023).

IV. Acceptance

Both wind farm projects achieved near-total levels of acceptance of the project by the local community. This indicates that local stakeholders view wind energy, and the specific projects, in a favourable light. This can be attributed to perceived benefits of community value creation, job creation, economic investment in rural areas and assisting with energy security in the country. This is supported by the literature which shows that acceptance for projects often relates to residents’ judgement of the collective socioeconomic and environmental benefits of wind energy in general (le Maitre, Ryan, & Power, 2024). Respondent B3 commented on the commercial focus that has been brought to the nearby town, noting that “*the hotel is now full whereas it was previously vacant.*” This sentiment was echoed across both projects in various guises. The communities’ nearly unanimous endorsement of both projects corresponds with the original EIA predictions. This is essential for the reduction of conflict and an improvement of the likelihood of project success. It also implies that the community recognizes the socio-economic and commercial benefits of wind energy. This attitude is underpinned by the literature where it is shown that community acceptance is an important element of whether or not a wind farm is built and operates in harmony with local residents (Baxter, Walker, Devine-Wright, Adams, & Smith Fullerton, 2020).

4.6.2. Differences between wind farm A and wind farm B.

There are three primary differences between the two case-study wind farms. The first difference relates to cumulative impact of wind farms in the project area. The second focuses on environmental challenges. The third difference relates to the degree of acceptance of each project.

I. Cumulative impact

Wind Farm A and Wind Farm B exist and function in profoundly different contextual environments. The former has no operating projects in the region and there is thus zero cumulative impact effecting the community. The later operates in an environment that also accommodates several other utility-scale wind farm projects, all of which effect the community. This was evidenced in the EIA records for wind farm B, wherein the risk posed to the regional landscape was raised as a material concern.

II. Environmental challenges

The environmental concerns faced by each project also differ. Wind Farm B encountered more significant environmental challenges, such as biodiversity impacts or location-specific restrictions, while Wind Farm A had fewer environmental hurdles to overcome, possibly due to its location or the timing of its development.

III. Degree of acceptance

The degree of community acceptance was different for Wind Farm A and Wind Farm B. This can be attributed to three issues:

i. *Number of wind farms in region*: There is a significant cumulative impact of wind farms at Project B with approximately five or six other wind farm projects found in the vicinity. This is likely to drive up agitation levels and magnify any conflict.
ii. *Socio-economic*: Wind farm A is located in a considerably more well-off farming community. Project B, whilst by no means located in a poor part of the country, is comparatively less well off than Wind Farm A. This will likely drive different acceptance rates and strongly link any compensation to acceptance.

iii. *Construction and power dynamics*: This was experienced by Respondent B1 and drove a negative perception of the project and low acceptance.

4.6.3. Interpretation of Results in Relation to the Research Question

The comparison between Wind Farm A and Wind Farm B yielded several insights.

I. Moderate Alignment with EIA Predictions: Both wind farms demonstrate high levels of community acceptance. This does not fundamentally reflect the outlook presented in the respective project EIAs. This outlook or sentiment can be termed cautious pessimism, and suggests that the EIA process, particularly the public participation component, was effective in procedure but not totally competent in creating positive initial perceptions of wind farm projects.

II. Variability in Acceptance: The analysis of Wind Farm A and Wind Farm B reveals meaningful differences in community acceptance levels compared to historical project sentiments (mainly the EIA.) Wind Farm A, as one of the country's first wind farms built, exhibits a high level of community acceptance that closely aligns with EIA predictions. This alignment can be attributed to more favourable initial conditions and a potentially less onerous EIA process. Conversely, Wind Farm B, faces more nuanced challenges that were not fully anticipated in the EIA process. These challenges include the cumulative impact of multiple wind farms in the region and evolving community perceptions.

III. Contextual Factors: Wind Farm A's status as one of the first wind projects in the country, coupled with potentially less mature environmental regulations, facilitated smoother community integration. In contrast, Wind Farm B faced a more challenging landscape. This was highlighted by site-specific community concerns.

The themes that emerged indicate that the EIA can provide an important baseline for predicting community acceptance. (Park, Ji-Hyeon, & Hyun-Jin, 2025). The records do not, however, capture current sentiment shown on the ground. Other factors such as long-term community sentiment evolution, and the repercussions of project construction difficulties are also not reflected. This would indicate that there is a need for the EIA process to allow for continuous assessment and stakeholder engagement during construction and operation. This may well ensure continued community acceptance throughout the project lifecycle.

4.7. Chapter Summary

The research question seeks to determine whether current community acceptance (or lack thereof) of wind farms is consistent with sentiments expressed in project feasibility documentation, specifically the Environmental Impact Assessment (EIA) records and the public participation section of the EIA. The findings here indicate that, while the sentiments in the EIA records laid a solid foundation for community acceptance, they cannot entirely predict the complicated community dynamics that are likely to materialise during construction and operation. The factors that drive community acceptance include, environmental concerns, socio-economic factors, and the procedural process (Klok, Kirkels, & Alkemade, 2023; Zaunbrecher & Ziefle, 2016) and cannot easily be covered fully in the EIA process.

The moderate disparities in acceptability between the two projects emphasize the importance of external factors that were not always shown in the original EIA documentation. Wind Farm B's lower degree of acceptance is due to the region's exposure to many wind farm developments, which increased community agitation. This suggests that cumulative effects and a community's socio-economic level have a larger impact on acceptance than what was reflected in the EIA records. The literature supports this and notes that the cumulative effects of parallel human development on the environment has consistently posed significant challenges for environmental management. Specifically, by hindering effective assessment and management of consequences across various pressures and stakeholders (Kuempel, Stockbridge, O'Neill, Griffiths, & Frid, 2025).

The responders exhibited a distinct theme of cautious pessimism, a word drawn and conceptualised from the research findings. The discrepancies observed between initial sentiments and current acceptance levels highlight the importance of planning for an adaptive project management strategy and looking to incorporate this into the EIA conditions. This will facilitate the incorporation of changing local conditions as the projects moves forward. The literature endorses this and shows clear benefits to adaptive management by way of continuous policy refinement and institutional improvements (Park, Ji-Hyeon, & Hyun-Jin, 2025; Morrison-Saunders, Arts, Bond, & Pope, 2021)

Similarly, it is important to conduct continuous community engagement throughout the project lifecycle, not only during the EIA phase. This would also allow for a better understanding of cumulative impacts (noting that this impact changes as progressively more projects are built in a region) as well as long-term socioeconomic and cultural changes.

5. Chapter 5: Conclusion and Recommendations

5.1. Introduction

Community acceptance is crucial to project success but also multifaceted. It is dependent on a variety of factors and key drivers, including the EIA process and public participation as a component of the EIA. The purpose of this study is to determine whether the current community acceptance, or lack thereof, of the wind farm reflected the sentiments expressed in the project feasibility documentation – specifically, EIA records and the public participation section of the EIA. This final chapter considers the fulfilment of the research questions and objectives.

5.2. Addressing the Research Questions

The main research question, together with the three sub questions are set out in Chapter 1. The discussion below summarises the research findings and illustrates how the research questions were answered in this study. The research questions asked at the outset of this study were:

I. *To what extent does community acceptance (or lack thereof) of a wind farm project reflect the initial sentiments expressed in the project feasibility documentation, specifically EIA records?*

There was a moderate level of alignment between sentiments recorded in the EIA documents and the interview findings. The research demonstrated that the general positive attitude expressed in the EIA documents has been largely realised in the form of current community support of the wind farms. The term "cautious pessimism" is used to describe community feedback in the EIA phase. This reflects a nuanced outlook in which stakeholders express concerns or doubts about a project, but without any outright negativity or hostility. The respondents showed reservations, likely based on uncertainties or past experiences, yet there remained a cautious willingness to engage or allow the project to move forward if the raised questions were adequately dealt with.

There were some initial concerns, particularly regarding visual and noise impacts, but these concerns appeared to diminish as the project matured into operational phases. This shows an evolution in community perceptions and highlights the need for EIAs to become ongoing, fluid documents.

Wind Farm A showed a high level of acceptance, whilst Wind Farm B showed a moderate acceptance level. Both sets of EIA documentation showed a high level of “cautious pessimism” towards each project whilst outright opposition was limited to one responded in Project B only.

There were remarkably high levels of community acceptance shown at both projects. This outcome surpassed initial projections that flowed from the EIA documentation wherein a level of negative curiosity was shown (but not outright negativity). The research has shown than that real local socio-economic benefit, growing increasing public awareness of climate change issues and low levels of actual impacts during operation have all contributed significantly to this positive attitude.

The findings are useful and provide valuable insights for future projects. The research emphasized that community acceptance changed temporally: it was relatively low during construction but increased as the project moved into operation. Existing research supports this position (Roddis, Roelich, et al., 2020).

Whilst both projects achieved relatively high acceptance levels, the study revealed nuances that must be acknowledged. Wind Farm A showed higher approval rates, with all respondents showing unambiguous support for the project. This was attributed to lower cumulative impacts and a better managed construction process that minimized nuisances. Conversely, Wind Farm B's experience with the construction process was less well received and lowered the acceptance to moderate.

II. What are the main concerns raised, and sentiments expressed by I&APs during the EIA process of a proposed wind farm?

Although the concept of renewable energy is generally supported, there is often opposition from those who are likely to be directly affected by factors such as visual impact and other nuisances associated with project execution (Upham & Johansen, 2020; Chappell, Parkins , & Sherren, 2021; Roddis, Roelich, et al., 2020). This was clearly shown by the research where high coding levels were associated with positiveness around the technology as a whole, but also high levels of coding were shown for construction nuisance. “Livestock and gate issues”; “noise” and “major construction impact” were categorised most often

III. *How do these concerns and sentiments change (if at all) once construction of the wind farm has been completed and it becomes operational?*

The term “cautious pessimism” has been derived from the study. This reflects that the sentiment shown by respondents in the EIA records was often cautious or wary, without being outright negative towards the proposed wind farm development. The level of community support shown during the EIA can therefore be categorised as high. The sentiment analysis across both projects brought about 8 “neutral” labels and 10 “positive” labels. Project A has zero negative labels, project B had 7.

Projects A and B presented high and moderate levels of acceptance. This can be considered higher than the acceptance level presented in the EIA records. The research supports this, and the relationship can be described as a U-shaped curve where residents’ attitudes towards projects are less favourable during the planning phase, but gradually improve once a wind farm enters into operation (le Maitre, Ryan, & Power, 2024).

IV. *How can improved engagement with I&APs during the EIA process aid earlier project acceptance?”*

Several strategies will improve engagement, and thus acceptance. The literature shows that community trust can be improved by deploying a designated community liaison officer (le Maitre, Ryan, & Power, 2024). This could be an individual or entity that is solely focused on engaging with the community with the mandate to feedback concerns and issues to the project community. This would reduce delays in implementing mitigation measures.

5.3. Achieving the Research Objectives

The study achieved the respective research objectives as follows:

I. *Evaluate the acceptance of wind farm projects among local community members and adjacent landowners.*

The study found differing levels of acceptance amongst the local communities of both projects. Wind Farm A demonstrated higher approval rates with all respondents showing clear support, highlighting benefits like improved infrastructure while expressing negligible concerns. Wind

Farm B showed moderate acceptance levels, with two of three respondents being supportive but one raising significant concerns about construction impacts and developer relations. The difference in acceptance levels appears influenced by factors including Wind Farm A's better construction management, and absence of other nearby wind farms, while Wind Farm B faced challenges from multiple regional wind farms and construction-related issues, particularly around farm gate access issues.

II. *Identify the concerns and sentiments of I&APs regarding proposed wind farm projects during the EIA process.*

Analysis of the EIA documentation shows that I&APs demonstrated, what the study came to term, “cautious pessimism" during the public participation process. At Wind Farm A, concerns primarily focused on construction nuisance (particularly noise), potential impacts on tourism, and environmental impacts on bird populations. Wind Farm B's EIA documentation contained more extensive concerns, including significant opposition from the game farming industry regarding visual impacts, environmental concerns about bird collisions, and worries around the cumulative impacts from multiple wind farms in the region. The stakeholders, while not outright negative, displayed scepticism towards the developments and raised questions about visual impacts, noise, and construction-related disruptions. Notably, Wind Farm B's EIA documentation contained over 120 pages of concerns, with particular emphasis on the project's potential impact on tourism and the "African Experience" sought by visitors to game farms.

III. *Examine the factors influencing I&AP support or opposition to proposed wind farm projects.*

The research shows that several key factors influence I&AP support or opposition to proposed wind farm projects. Construction phase impacts emerged as a significant factor, with issues like increased traffic, noise, and crime playing a role in acceptance levels. Socio-economic reasons were also identified as an influence, with wind farm A's more affluent farming community showing different acceptance patterns compared to Wind Farm B. Cumulative impacts proved crucial, as Wind Farm B faced additional challenges due to several wind farms in the region, either operating or under construction. Project management approaches, particularly during construction, significantly influenced acceptance, with Wind Farm A's better-managed construction phase resulting in less issues and a higher acceptance level.

It was also found that early and effective public participation, combined with the ability to deliver promised community benefits, were important determinants of acceptance or opposition. Environmental concerns, particularly regarding bird populations and visual impacts, also influenced stakeholder attitudes, though these appeared to diminish over time as communities adapted to the operational wind farms. Again, this is confirmed with the literature showing that the relationship between EIA and later acceptance is U-shaped, where residents' attitudes towards projects are less favourable during the planning phase, but gradually improve once a wind farm enters into operation (le Maitre, Ryan, & Power, 2024).

IV. *Identify best practices for achieving stakeholder acceptance of wind farms in the South African context.*

Several key best practices emerged for achieving stakeholder acceptance of wind farms in South Africa. The research identified that ongoing community engagement beyond the initial EIA phase is crucial. It is suggested that the appointment of a dedicated community liaison will add value, as will the establishment of regular feedback mechanisms. Effective construction phase management proved vital, as this period significantly influences long-term acceptance levels. It is therefore important that the construction process is competently overseen and strict processes are in place to reduce conflict.

The research showed that transparent communication about impacts, particularly regarding visual and noise effects, helps manage community expectations. Adaptive management strategies that can respond to emerging community concerns, combined with clear benefit-sharing mechanisms, were found to enhance acceptance. The study also emphasized the importance of considering cumulative impacts when multiple wind farms are planned in one region, as this significantly affects community perceptions and acceptance levels.

V. *Develop strategies for better engagement with local communities.*

Based on the research findings, several key strategies emerged for better community engagement in wind farm projects. First, establishing long-term communication structures beyond the minimum EIA requirements, such as community advisory boards or dedicated liaison officers, helps maintain positive relationships. Second, implementing a real-time feedback system loop, for instance a dedicated hotline or an online portal would be beneficial as this allows communities to raise concerns promptly. Third, extending public participation periods beyond the current 60 days enables more thorough community input. Fourth, using innovative engagement techniques like 3D modelling or visual simulations helps communities better understand potential impacts. Finally, it is proposed to develop adaptive management strategies that will respond to evolving community concerns throughout the project lifecycle, rather than treating the EIA as a one-time exercise, proves crucial for maintaining community acceptance.

5.4. Practical Value and Implications of the Research

The ultimate value of this research is to inform and improve policy recommendations that result in a streamlined wind farm development process, whilst not compromising community acceptance. It is imperative that EIAs should be treated as living documents rather than static predictions, with mechanisms for ongoing assessment and stakeholder engagement beyond the initial phase. The public participation process should be enhanced through longer engagement periods and innovative communication tools.

Legislation and policy should require the establishment of formal community liaison structures and feedback mechanisms throughout project lifecycles. Additionally, attention should be paid to managing cumulative impacts when multiple wind farms are planned in one region, as this significantly affects community acceptance, a seen at project B. Construction phase management must be strictly regulated and penalties implemented on the developer if community concerns are ignored.

Therefore, this study identified the following two imperatives:

I. Need for ongoing community engagement beyond initial EIA phase

While EIAs provide a crucial baseline for predicting community acceptance, they may not adequately capture dynamic factors such as long-term community evolution, cumulative project impacts, and unforeseen construction challenges. This underscores the need for ongoing assessment and stakeholder engagement beyond the initial EIA phase. This could be improved through the establishment of long-term community structures that facilitate communication between the community and the project. This could take the form of a community advisory board or the appointment of a community liaison officer. Regular project updates, communicated by way of a newsletter or similar would serve the same function, as would regular community meetings wherein the results of ongoing monitoring and reporting are shared. Similarly, adaptive management strategies, that can be adjusted based on ongoing community feedback are important and this should be followed by a clear process or framework to address concerns. The literature endorses this and shows clear benefits to adaptive management and ongoing evaluation (Morrison-Saunders, Arts, Bond, & Pope, 2021; Park, Ji-Hyeon, & Hyun-Jin, 2025)

II. Methods to better address fluid community concerns

There are several ways of dealing with the changing and evolving element of community engagement. Firstly, periodic assessments of community needs and perceptions will allow for any new or changing concerns to be dealt with quickly. This could assist in maintaining or improving community acceptance levels. Additionally, real-time feedback systems would add significant benefit. This could comprise an online portal or phone number. Scenario planning to better anticipate future challenges and develop proactive solutions would show the local community that the wind farm project is serious about local support. Similarly, the sharing of information and lessons learnt from other projects would also be beneficial.

5.5. Revisiting the Research Proposition

The research proposition for this study, as stated in Chapter 1 is:

The degree of community acceptance of a wind farm is not static; it evolves over the lifespan of the wind farm project.

This research proposition is generally supported. The findings show that, while both Wind Farm A and Wind Farm B have high levels of community acceptance, the degree and form of acceptance varies. This can be attributed to socio-economic factors, cumulative impact of other wind farms and a different regulatory environment. The data supports this, and the relationship can be defined as a U-shaped curve in which community sentiments toward wind projects are less favourable throughout the development and feasibility period but steadily increase once a wind farm is operational (le Maitre, Ryan, & Power, 2024).

The term *cautious pessimism* was developed to describe both EIA processes. The term indicates that interested and effected parties, whilst not outright negative, did display scepticism towards a new development within the community and asked several negatively inclined questions around issues such as visual and noise impact and other construction-related nuisances. This sentiment can be understood in the context of a relatively new industry that was seeking to enter a region with the intent to construct a major infrastructure project.

The study highlights the importance of reducing impacts during construction and managing concerns emanating from this period. Cumulative impacts are also noteworthy and contributed to a slightly lower acceptance rate at Wind Farm B. Additionally, adaptive management strategies are important and must be prioritised in order to ensure the ongoing refinement of the EIA outcomes

5.6. Recommendations for Future Research

Based on the above outcomes, the following recommendations are made for further research

I. Improvement of EIA processes and public participation

Further research is required as to how EIA processes and public participation can be improved. Firstly, this could include how relevant stakeholders are better identified. This could comprise a more thorough method of identifying all potential I&APS in the area, including vulnerable or marginalized groups. Secondly, further research can explore more innovative engagement techniques. This could include a digital platform or visual aids to show future potential impact and to allow all stakeholders to fully understand the proposition and meaningfully engage on the issues.

Additionally, the value of longer engagement periods can be examined. The current norm is two periods of 30 days for EIA processes in South Africa. This could be extended to allow for more thorough community input. Transparency must also be highlighted, and it should be clearly communicated that public input does influence decision-making and is not ignored. If stakeholders are made to understand that public participation is not merely a box ticking exercise and results in a better project outcome, participation rates will likely increase going forward.

II. Longitudinal studies on community acceptance over time

Longitudinal studies are critically needed to understand how community acceptance of wind farms evolves over time. This would allow for a better understanding of the evolving dynamics of a project. Such studies could track community attitudes and perceptions throughout a project's lifecycle, from pre-construction to operational phases, providing insight into how acceptance changes. Key research questions could examine how acceptance levels shift during different project phases, which factors trigger changes in community sentiment, and how initial expectations align with actual experiences during the construction and operation phase of a wind energy project. This type of study would offer a comprehensive view of community acceptance and would move beyond the limitations of cross-sectional studies to better understand the temporal dynamics of community acceptance. Such research would assist in informing more effective engagement strategies throughout project lifecycles. Additionally, this approach would cater for the establishment of a baseline assessment. If coupled with regular follow-ups using consistent methodologies, the researcher would be able to monitor various aspects such as overall acceptance levels or specific concerns raised by community members.

III. Investigation of innovative public participation methods

Research is required to assess the potential of better public participation strategies for improving community engagement in wind farm development. This is an important area of research that might boost community participation and, ultimately, acceptance. Studies could research the practicality of various technologies, such as 3D modeling or virtual reality, to improve community knowledge and acceptance of proposed projects.

Research questions could explore issues such as: How do different visualisation methods affect stakeholder engagement, or what tools are most effective for diverse and vulnerable populations? Investigation is needed into real-time feedback mechanisms, including studies on the effectiveness of mobile applications and public dashboards in facilitating community dialogue. Future research should also examine interactive planning tools, such as impact simulators that allow communities to explore different turbine layouts and their associated effects. Comparative studies could assess how these various technological approaches affect participation levels, quality of feedback, and ultimate project acceptance across different demographic groups and contexts.

IV. Research on adaptive management strategies in EIA processes

Future research could examine how adaptive management principles could enhance Environmental Impact Assessment processes throughout a project lifecycle. This is an important area of future research and could increase the relevance of environmental assessments throughout a project's lifecycle.

Research questions could explore how mitigation measures can be adjusted based on monitoring data, or what mechanisms could foster and incorporate stakeholder concerns. Similarly, how do cumulative impacts from multiple projects affect the need for adaptive management? Additionally, investigation is also needed into the potential role of new technologies - research should examine how artificial intelligence and geographic information systems could transform an EIA from a static document into a dynamic management tool. Such studies could assess different technological approaches to monitoring, data analysis, and stakeholder engagement, evaluating their effectiveness in creating more responsive environmental management processes.

5.7. Concluding remarks

As South Africa and other countries around the world continue to add new wind generation to the grid, the issues that underpin and explain acceptance will grow. It is therefore vitally important that the learnings here are expounded. If there is no community acceptance, or a coalescence of communities' forms against these projects in rural areas, the ability to continue to add renewable energy into the South African energy mix will be severely compromised.

This study has shown that while Environmental Impact Assessments provide a foundation for predicting community acceptance of wind farm projects, they cannot fully anticipate the changing dynamics that evolve over a project's lifecycle. The research reveals a generally positive acceptance of wind farms, albeit with nuanced differences between projects, highlighting the importance of contextual factors such as socioeconomic conditions, cumulative impacts, and evolving regulatory landscapes.

Moving forward, stakeholders would benefit from viewing EIAs as living documents as opposed to static predictions of what will happen. If this is done, developers and policymakers can better work through the challenges of renewable energy execution. This will ensure that the energy transition can better align with community interests and will foster long-term social acceptance. The term cautious pessimism was coined to describe the sentiment shown in EIA records; this reflects the nuanced outlook of stakeholders who hold reservations based on pre-conceptions, or a level of anxiety of the unknown. Another way of describing this may be termed *conditional acceptance*. This would describe a situation whereby the community accepts the project in principle but with reservations that need to be addressed. They could be open to changing their viewpoint if items they view as critical issues are resolved.

Lastly, it is clear that the EIA and public participation process provides an important baseline for predicting community acceptance. However, this can be improved through the inclusion of dynamic factors such as tracking the evolution of community acceptance, cumulative impacts and the delay, or retiring, of project execution. This highlights the need for ongoing assessment and stakeholder engagement beyond the initial EIA phase. Fundamentally, the EIA and should be viewed as a living document rather than a static predictor of the future.

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Annexure A: Informed Consent Form

Research Project Information & Informed Consent

University of Cape Town

Department of Construction and Economics and Management

Title of study: **Exploring the effectiveness of the public participation process in addressing the concerns of landowners adjacent to a wind farm.**

Supervisors: Dr Louie van Schalkwyk. Email: louie.vanschalkwyk@uct.ac.za

Dear Participant,

You are invited to participate in an academic research study conducted by Ben Brimble, a Master of Science student in the Construction Economics & Management (CEM) department at the University of Cape Town (UCT). This document serves as both a brief introduction to the research topic and the informed consent form, should you show interest in participating.

The purpose of the study is to identify the adequacy of the public participation process and the effectiveness of the process in mitigating concerns raised by landowners adjacent to a case study wind farm. The investigation will assist in providing a conceptual understanding of the public participation process and if it is fit for purpose to alleviate concerns, mitigate impacts, and manage expectations from adjacent landowners.

Please note the following:

- Your participation in this study is entirely voluntary. You may choose not to participate in the study, and you may also stop participating at any time without any consequences.
- Your name will not be included in the Interview transcription or required to participate in the study. Therefore, your anonymity will be protected in the final research report. Furthermore, your answers will be strictly confidential and only used for the purpose of this study. Your data will not be shared with third parties.
- The findings of this study will be used for academic purposes only and may be published in an academic journal.

- No remuneration will be given for your participation in the study.
- The Interview should take no more than 40 minutes of your time.

Please indicate whether you consent to participate in the study by selecting one of the tick boxes. By consenting, you agree that:

- You have read and understood the information provided above.
- You give your consent to participate in the study on a voluntary basis.
- You give your consent to the audio recording of the interview for data transcription purposes only.

☐ **Yes, I consent** ☐ **No, I do not consent**

For any questions or comments regarding this study, please do not hesitate to contact:

Ben Brimble brmben001@uct.ac.za

Annexure B: Interview Question Schedule

Interview Schedule
August 2, 2023

The following questions will form the basis of my interviews with research participants. Noting that the format is semi structured, and I will therefore attempt to facilitate a conversation and informal dialogue that will allow the teasing out of key information during the session:

I. Renewable energy and wind farms

A. Do you agree that the country requires significant new capacity, of all technologies. Does this factor into your support (if provided) of the project?

B. What are your views on wind energy in general?

C. Can you describe the construction process for the wind farm. Do you feel that you were adequately prepared for this?

   a. Was the negative impact (if any) adequately communicated to you?

   b. Where their grievance mechanisms or similar in place

II. Public participation process at *Wind Farm 1*

A. Did the EIA consultant afford you the opportunity to participate in the public participation process?

   a. If so, what format(s) did this take?

B. Did you make use of this opportunity by providing comments or asking any questions? Did you initially support the project?

   a. If you did not, what were the reasons for this?

   b. Why did you decide to participate or not?

   c. Where promises made to you that you would benefit from the wind farm?

   d. Was there any initiative shown by the project company to allow you to participate in the public participation process. I.e.: did the project company make proactive efforts to get you involved in the public participation process?

III. Effect of *Wind Farm 1* on you personally

C. Do you feel that the public participation component of the EIA took into consideration your concerns?

   a. Do you feel that the community shared the same views as yourself?

D. If you did support the project, are you happy with your decision to do so?

E. Do you feel that the wind farm created the potential for conflict?

a. Between which parties? The wind farm and the neighbours or between landowners?
b. Did the PP assist in reducing the conflict?

F. Has your attitude towards the project changed since you initially provided comment?

G. Do you feel that the neighbouring wind farm has positively affected you personally, in any regard?

a. Did any material positive benefits flow to you as a result of the project? Was their a profit sharing structure or a similar process?
    i. was anything in this regard promised to you during the public participation process?
    ii. Do you feel that you have a legitimate claim to any compensation or benefit from the wind farm?

H. Has the wind farm negatively affected you, if at all?

a. If so, please can you elaborate, taking into account concerns around security, visual impact, socio economic concerns etc.

Annexure C: Ethics Approval

UNIVERSITY OF CAPE TOWN
IYUNIVESITHI YASEKAPA • UNIVERSITEIT VAN KAAPSTAD

2023/08/29

EBE/00369/2023

RE: Research Ethics Committee Project Approval Letter

Dear Benjamin Brimble,

Your application for ethics review of your project titled

Exploring the effectiveness of the public participation process in addressing the concerns of landowners adjacent to a wind farm.

has been reviewed and evaluated by the

Engineering & Built Environment Committee.

You may proceed with your research project titled:

Exploring the effectiveness of the public participation process in addressing the concerns of landowners adjacent to a wind farm.

Please note that should:

(i) any serious or adverse effects to participants occur and/or,

(ii) aspect(s) of your current project change and/or

(iii) any unforeseen events that might affect continued ethical acceptability of the project occur then you should immediately report this to the approving REC. You may be required to submit an amendment to this application, in order to determine whether the changed aspects increase the ethical risks of your project.

Based on the information supplied your application has been successful and is approved.

Please note the following additional conditions associated with this approval:

(i) Approved.
Please do consider the 'social justice' implications of interrogating only the interests of adjacent land-owners, rather than also adjacent dwellers with lesser power than land-owners.
Also, since confidential data lthat might cause harm to reputations could be gathered, data is to be stored securely and disposed of after use. A data management plan is strongly recommended in EBE.

Regards,

Engineering & Built Environment Committee.