SOCIAL IMPACT ASSESSMENT REPORT:

Renewstable Qhakaza within the Pixley Ka Seme Local Municipality in the Mpumalanga Province.

Prepared by:

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Submitted to: Esther Ndou

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BIOGRAPHY OF INDEPENDENT CONSULTANT

Personal details

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Qualification

University of Limpopo: B.A Social Science – 1994
University of Venda: B.A (Honours) in Psychology- 2004
University of Johannesburg: Masters in Sociology (Social Impact Assessment)- 2014

Experience

Vhahangwele has over 20 years of professional experience in Environmental Social Government (ESG) strategy design, corporate social responsibility, stakeholder engagement, environmental administration, and risk assessment.

She most recently established and ran the Impact and ESG departments for the Public Investment Corporation ("PIC") 's unlisted investments, covering all unlisted strategies, including private equity, real estate, and impact investment. The PIC is the Asset Manager for the South African Government Employee Pension Fund, Unemployment Insurance Funds, and Compensation Commission and is Africa's largest pension fund. Vhahangwele has been an independent Socio-Economic specialist since 2013.

Over the last five years, she has served on four PRI advisory committees and the Advisory Board for the Sustainability Accounting Standards Board. Hangwi regularly speaks on ESG panels at conferences globally. She is an Eisenhower Fellow.
During her career in sustainable development within different industries, she has worked in non-government organisations focusing on community upliftment. She has also managed the Corporate Social Investment ("CSI") Fund for blue-chip companies in South Africa.
Hangwi holds a Master's in Sociology (Social Impact Assessment) from the University of Johannesburg and a BA (Hons) in Psychology from the University of Venda and the University of the North (Limpopo).

DECLARATION OF INDEPENDENCE

I, Vhahangwele Manavhela, declare that I act as an independent specialist consultant in Environmental Social and Governance (ESG) and Socio-Economic Impact Assessment (SEIA).

I am appointed as a Socio-Economic Specialist Consultant by Nsovo Environmental Consulting for an Environmental Social Impact Assessment report for the Proposed Development of Renewstable Qhakaza within the Pixley Ka Seme Local Municipality in the Mpumalanga Province.

I do not have or will not have any financial interest in undertaking the activity other than remuneration for work performed and have or will not have any vested interest in the proposed activity proceeding. I have objectively performed the work relating to the application. I Will provide the client and competent authority with access to all information regarding this project, whether favourable or not.

I have the expertise required in Sections 17 and 32 of Regulation 543 issued under the National Environmental Management Act 107 of 1998. I Undertake to disclose to the client and the competent authority any material information that has or may have the potential to influence the decision of the competent authority required under the Environmental Impact Assessment Regulations 2006. I also confirm that the report aligns with Appendix 6 of the EIA regulation.

1. Contents

2. Introduction

This Social Impact Assessment (SIA) has been prepared for the proposed development of the Renewstable Qhakaza project, a 34MW high-capacity Solar plant based on hydrogen energy storage technology. The Renewstable Qhakaza project is part of an initiative to develop four high-capacity renewable power plants based on hydrogen energy storage technology. These plants are strategically located in the Pixley Ka Seme Local Municipality, Mpumalanga Province, located within the Majuba Cluster. The primary objective of this SIA is to evaluate the potential social impacts associated with the project, both positive and negative, and to propose appropriate mitigation measures that will enhance the benefits while minimising any adverse effects on the local communities.

As part of the Eskom lander tender MWP1247GX, Hydrogene de France (HDF) Energy has been awarded 1,782 hectares of Eskom's land to develop four Renewstable power plants in Mpumalanga Province, South Africa. These plants are distributed across four plots within the Tutuka and Majuba Coal Power Stations. HDF is among a cluster of various project developers who have also been granted land in this area to develop renewable energy infrastructure. Under its Special Purpose Company (SPC), "Renewstable Mpumalanga (Pty) Ltd," HDF is spearheading the development and implementation of four projects within the Majuba area, named explicitly as follows:

- Renewstable Qhakaza
- Renewstable Bokamoso
- Renewstable Sivutse
- Renewstable Ntokozo

These projects are centred on using hydrogen energy storage technology, enabling the generation of renewable energy that can be stored and dispatched as needed. Implementing these projects is expected to play a significant role in addressing South Africa's energy needs by providing reliable electricity services, thereby contributing to the stability and sustainability of the national grid.

Renewstable Qhakaza is a proposed development project in the Pixley Ka Seme Local Municipality in the Mpumalanga Province of South Africa. The project is near key sensitivities and infrastructure, including residential areas, agriculture, and essential facilities such as schools and hospitals.

Notably, the project site is near Amersfoort, with surrounding features including the Majuba Power Station to the southwest and Dagga kraal to the southeast. The area is traversed by

significant transportation routes such as the N11 national road and railway lines. Perennial rivers and agricultural land further characterise the region, which underscores the environmental and social implications of the development.

This project is part of a broader initiative to enhance sustainable energy infrastructure within the region, contributing to both local energy needs and national renewable energy goals. The development must carefully consider the various sensitivities identified, ensuring that impacts on the surrounding environment and communities are minimised through strategic planning and mitigation efforts.

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The Social Impact Assessment is a critical component of the overall ESIA process, designed to identify and assess the various social impacts of the proposed development on the surrounding communities. The SIA process includes a detailed analysis of the potential social changes that could result from the project, such as alterations in employment opportunities, land use patterns, community dynamics, and access to services. This assessment also provides a platform for engaging with the affected communities, allowing their concerns and aspirations to be considered in the project planning and decision-making processes.

In the Renewstable Qhakaza project context, the SIA is particularly important because it ensures that those directly or indirectly affected by the development are heard and factored into the project's implementation strategy. The process involves evaluating whether the impacts on valued socio-economic components are significant based on the perspectives of the impacted people. Additionally, the SIA facilitates the planning of measures to maximise the beneficial effects of the project, such as job creation, skills development, and economic growth, while mitigating potential adverse effects like displacement, social disruption, or increased demand for local services.

The overarching goal of the Renewstable Qhakaza project is to diversify South Africa's energy portfolio, thereby reducing the risk of voltage collapse, which can lead to load shedding. By integrating hydrogen energy storage technology, the project seeks to contribute to a more resilient and adaptable electrical network, ultimately enhancing the reliability of the country's electrical systems. This SIA report is a crucial step in ensuring that the social dimensions of this ambitious energy project are thoroughly understood and appropriately addressed, paving the way for a development that not only meets the technical and environmental requirements but also delivers meaningful social benefits to the people of Mpumalanga.

1.1 Project Overview

The Renewstable Qhakaza project is an innovative renewable energy initiative spearheaded by Hydrogen de France (HDF) Energy. The project focuses on developing high-capacity renewable power plants integrating hydrogen energy storage technology. These plants are designed to harness renewable energy, primarily through photovoltaic (PV) solar power, and store this energy in hydrogen. This stored energy can be converted into electricity, ensuring a continuous and reliable power supply.

Project Components

The Renewstable Qhakaza project consists of several key components, each contributing to the overall functionality and success of the initiative:

a. **Hydrogen Energy Storage Technology:**

- The core of the Renewstable project lies in its use of hydrogen as a medium for energy storage. During periods of excess solar generation, electricity is used to produce hydrogen through a process known as electrolysis. This hydrogen is then stored in compressed gas form and later converted into electricity using fuel cells when solar generation is insufficient.

b. **Photovoltaic (PV) Solar Power Plant:**

- The project includes a large-scale solar power plant, the primary renewable energy source. The PV plant has advanced solar panels and tracking systems to maximise energy capture throughout the day.

c. **Battery Energy Storage System (BESS):**

- In addition to hydrogen storage, the project incorporates a Battery Energy Storage System (BESS) that provides short-term energy balancing and grid stabilisation. This system ensures that fluctuations in solar generation due to factors like cloud cover do not disrupt the continuous electricity supply.

d. **Hydrogen Power Centre (HyPCe):**

- The Hydrogen Power Centre is where hydrogen is produced, stored, and converted into electricity. It houses the electrolysers, fuel cells, and other critical infrastructure for the hydrogen energy cycle.

e. **Infrastructure and Support Facilities:**

- The project includes essential infrastructure such as access roads, control rooms, warehouses, and security facilities. These support the operation and maintenance

of the renewable energy plant.

Project Objectives
The primary objectives of the Renewstable Qhakaza project are to:

- **Diversify South Africa's Energy Mix:** By incorporating hydrogen energy storage technology, the project aims to contribute to a more balanced and sustainable energy mix, reducing reliance on fossil fuels and enhancing energy security.

- **Enhance Grid Stability:** Hydrogen and battery storage systems ensure a stable and reliable supply of electricity, even during periods of low solar generation. This contributes to grid stability and reduces the risk of load shedding.

- **Promote Economic Development:** The project is expected to create jobs, provide training opportunities, and stimulate economic growth in the Mpumalanga region.

- **Support Environmental Sustainability:** As a renewable energy project, Renewstable Qhakaza is aligned with global efforts to reduce carbon emissions and combat climate change.

Project Phases
The project assessment has been divided into three (3) phases, which are as follows:

Phase	Description
Phase 1: planning-construction	In this phase, the engineering and design team will develop the Project's detailed design and layout, including the simulation process for all the activities. This includes the transportation of Project components on-site, as well as Site preparation and construction activities for the installation of PV modules inverter stations, substations, internal access roads, offices and warehouses, the process should also focus on planning for contractors and sub-contractors mobilisation, fencing, levelling and grading, transportation of project components. The second part of this phase is the construction phase, which is the installation of the plant. This phase will require various contractors and sub-contractors based on their skills
Phase II: Operation	It involves the commissioning and operation of the plant. The requirements involve the Operating Company, plant maintenance, security personnel, cleaning of the panel and grass cutting below the panel and on the pathway.

	During this phase, the maintenance team will also be required for electrical and engineering.
Phase III: Decommissioning	The decommissioning will happen when the Project comes to an end life, or the mine ceases to operate. The operating company should develop a rehabilitation plan to ensure the plant continues or is decommissioned and the land is rehabilitated. This phase will also cover the equipment's end of life, i.e., panels and batteries, as they will need to be decommissioned and disposed of safely and in a way that does not create pollution.

Project Benefits
The Renewstable Qhakaza project offers several benefits, including:

- **Reliable Renewable Energy:** The integration of hydrogen storage ensures a continuous supply of electricity, making renewable energy more reliable and reducing the need for fossil fuel-based power generation.

- **Job Creation and Skills Development:** The project will create temporary and permanent jobs, contributing to local economic development. Training programs will also be implemented to enhance the local workforce's skills.

- **Environmental Protection:** The project aligns with South Africa's commitment to reducing greenhouse gas emissions and promoting sustainable development.

1.2 Scope of work

According to Barbour (2007:28), the terms of reference (TOR) in an SIA should indicate how and to what extent the SIA specialist should be involved in the purpose and scale of the proposed intervention.

The assessment will consider the following:

a. Establish the project context and administrative Framework
b. Define a preliminary project area of influence
c. Establish the known baseline conditions
d. Identify anticipated impact
e. Define studies required to understand the baseline conditions and the impacts further.

f. Prepare the terms of reference for SIA.

The results of these specialist studies will be integrated into the final Environmental Impact Assessment (EIA) report.

3. Methodology

The study involved thoroughly examining documents provided and other relevant materials to delineate the socio-economic profile of the project's zone of influence and pinpoint potentially affected communities and key stakeholders. A comprehensive site visit and exploration of the study area were done to gain an in-depth understanding of the region's social factors. Furthermore, conversations were conducted with landowners to gather insights from local perspectives.

Additionally, detailed observations were made regarding the environmental and socio-economic conditions within the communities, including aspects like topography, infrastructure, and livelihood activities. These collective findings were the foundation for the scoping study and identifying potential mitigation measures. GPS information was recorded where feasible to enhance the precision of location data. This integrated approach aimed to comprehensively understand the project's possible impacts on the social and environmental aspects of the surrounding communities.

3.1 Study Approach

Social impacts affect the level of social and socio-economic activities in a region either positively or negatively. For instance, they directly affect the socio-economic well-being of residents in an area by changing employment levels, education and skills levels, household size and income levels. A socio-economic impact assessment traces demographic and livelihood developments in the local economy. It then measures the cumulative effects of those developments and patterns. The nature of the proposal determines the impact region and can include the entire country, a province, an individual municipality or a combination of municipalities.

Estimating the socio-economic impact of a project or development is very helpful in understanding the potential benefits of various forms of growth and changes made in the built environment. Social impacts can be defined as "The consequences to human populations of any public or private actions (these include policies, programmes, plans and/or projects) that alter how people live, work, play, relate to one another, organise to meet their needs and

generally live and cope as members of society. These impacts are felt at various levels, including individual level, family or household level, community, organisation or society.

The study focused on specifying how adverse impacts may interact with beneficial impacts and identifying how to manage the impacts.

The SIA builds on two fundamental approaches to evaluating the impact of the proposed powerline:

a) Technical analysis, where researchers identify from their investigations, published studies and complicated simulations how the proposed development will likely affect different groups in society and
b) A participatory approach will be used through stakeholder consultation to assess the proposed development's impact from the perspectives of those most affected and knowledgeable about the context.

A quantitative and qualitative methodological approach was applied throughout the study, using a triangulation research technique. A recognised impact assessment technique was used to assess the impacts, and it is described below in greater detail.

The assessment has embraced a methodological approach centred on technical analysis. This involves a systematic and detailed project examination, utilising specialised expertise, tools, and methodologies to evaluate various technical aspects. This method focuses on quantitative data, measurements, and empirical evidence to provide a robust and objective evaluation of the project's technical feasibility, efficiency, and potential impact. By employing this analytical Framework, the assessment ensures a thorough exploration of the project's technical intricacies, facilitating a comprehensive understanding of its implications and contributing to well-informed decision-making processes.

3.2 Data Collection

Data was collected through the following methods.

- An extensive documentation review was also undertaken; the quantitative approach used secondary data from various websites, including Municipalities 'IDPs and Socio-economic studies, GIS maps, Google Earth, and the Demarcation Board.
- A review of maps and aerial photographs of the routes.
- A broader literature scan.

2.3 Mitigation and Monitoring

Specialists should set mitigation measures where adverse impacts are identified (ways of reducing effects). Where no mitigation is feasible, this should be stated, and the reasons were given. Where positive impacts are identified, ways of enhancing these impacts should also be mentioned. The specialists should set quantifiable standards to measure the mitigation's effectiveness. This may include input into monitoring and management programmes.

2.4 Study Limitation

The SIA must be based on current and accurate project information. Similarly, the geographic extent of the SIA is influenced by project design and overall planning processes. The report is based on current information received while compiling the feasibility study and considers project information relating to planning and design, implementation, and infrastructure placement.

- This study was done with the information available to the specialist when executing it within the available timeframe and budget. The sources consulted need to be completed; additional information might exist, which might strengthen arguments or contradict the information in this report.
- It was assumed that the motivation for and the ensuing planning and feasibility studies of the project were done with integrity and that the information provided to date by the other stakeholders was deemed accurate.
- As is the nature of social research, the results of this study cannot be generalised and applied to the entire population across the whole area and are restricted to the specific study area.
- Also, people's actions can never be predicted with 100% accuracy, even when circumstances stay the same, and predictions are based on rigorous research results. Therefore, the potential impacts must be assessed holistically and not in isolation.

4. Project Description

4.1 Project Location

The Renewstable Qhakaza project is strategically located within the Majuba Cluster in the Mpumalanga Province of South Africa, an area renowned for its established energy production infrastructure. Developed on 1,782 hectares of land leased from Eskom, the country's primary electricity supplier, the project spans multiple sites carefully selected for

their proximity to existing power stations, particularly the Tutuka and Majuba Coal Power Stations. This strategic positioning ensures the efficient integration of the renewable energy generated into the national grid, contributing significantly to South Africa's energy transition.

HDF Energy, through its Special Purpose Company (SPC) "Renewstable Qhakaza (Pty) Ltd," is leading the development and implementation of four key projects within the Majuba area: Renewstable Qhakaza, Renewstable Bokamoso, Renewstable Sivutse, and Renewstable Ntokozo. These projects are intentionally situated in the Majuba Cluster, a region historically dominated by coal-based energy production, to leverage existing infrastructure while minimising environmental and social impacts.

- **Renewstable Qhakaza**- Positioned near the Tutuka Power Station, this facility benefits from efficient energy distribution and grid integration.
- **Renewstable Bokamoso**- Located on the Farm Schurvepoort 63-HS Portion 10, approximately 18 km northeast of Majuba Power Station and 8 km southeast of Amersfoort, this site covers around 250 hectares within the Pixley Ka Seme Local Municipality. The strategic location within the Gert Sibande District Municipality enables it to serve a broader regional area.
- **Renewstable Sivutse-** Situated near the Majuba Power Station, this site ensures minimal transmission losses and enhanced reliability in power supply due to its proximity to existing infrastructure.
- **Renewstable Ntokozo**- Also located within the Majuba Cluster, the Ntokozo project complements the other facilities, focusing on maximising energy output while maintaining environmental sustainability.

The deliberate selection of these sites within the Majuba Cluster reflects a commitment to transitioning the region from its reliance on coal to becoming a hub of renewable energy innovation. The Renewstable plants integrate renewables into existing energy infrastructure; the project enhances grid stability and marks a significant step towards a more sustainable energy future for South Africa.

4.2 Project Background

The Renewstable Qhakaza project is a landmark initiative undertaken by Hydrogene de France (HDF) Energy. It aims to contribute to South Africa's energy transition by developing high-capacity renewable power plants that integrate hydrogen energy storage technology.

This project is part of a broader strategy to diversify the country's energy mix, reduce dependence on fossil fuels, and enhance the reliability of the national power grid.

3.2.1 Context and Rationale

South Africa has been facing significant energy challenges, including frequent power shortages, load shedding, and a heavy reliance on coal-fired power plants, contributing to high greenhouse gas emissions. To address these challenges, the South African government has been promoting the development of renewable energy sources as part of its Integrated Resource Plan (IRP). The Renewstable Qhakaza project aligns with this national strategy by introducing a sustainable and innovative solution to the country's energy needs.

The project leverages hydrogen energy storage technology, which allows for the capture and storage of energy produced by renewable sources, such as solar power. This stored energy can then be converted back into electricity when needed, ensuring a continuous and stable power supply, even when renewable generation is intermittent. This capability is particularly crucial in stabilising the grid and reducing the frequency of load shedding.

3.2.2 Project Initiation and Land Allocation

As part of the Eskom lander tender MWP1247GX, Hydrogene de France (HDF) Energy was awarded 1,782 hectares of Eskom's land to develop six Renewstable® power plants in Mpumalanga Province, South Africa. These power plants are strategically distributed over six different plots within the Tutuka and Majuba Coal Power Stations, areas that have traditionally been associated with coal-based energy production. The selection of these sites is part of a broader initiative to repurpose existing energy infrastructure for renewable energy development.

HDF Energy established a Special Purpose Company (SPC) named "Renewstable Qhakaza (Pty) Ltd" to oversee the development and implementation of these projects. The four primary projects under this initiative are:

- Renewstable Qhakaza
- Renewstable Bokamoso
- Renewstable Sivutse
- Renewstable Ntokozo

Each project is designed to integrate hydrogen energy storage with renewable energy generation, providing a scalable and reliable solution for South Africa's energy needs.

3.2.3. Renewstable Technology

The Renewstable technology is at the heart of this project. It involves a process where renewable energy, primarily generated through photovoltaic (PV) solar panels, is used to

produce hydrogen through electrolysis. The hydrogen is then stored in high-pressure tanks. It can be converted back into electricity using fuel cells when solar generation is insufficient, such as during night-time or cloudy periods.

This technology offers several key benefits:

- **Energy Storage and Dispatchability:** The ability to store energy and dispatch it when needed ensures a continuous and reliable power supply, which is critical for grid stability.
- **Reduction in Greenhouse Gas Emissions:** The project significantly reduces carbon emissions by replacing coal-fired power generation with renewable energy, contributing to South Africa's climate goals.
- **Enhanced Grid Stability:** The Renewstable® plants can provide ancillary services to the grid, such as frequency regulation and voltage support, which are essential for maintaining grid reliability.

3.2.4 Project Location and Area of Influence

The Renewstable Qhakaza project is strategically located within the Majuba Cluster in the Mpumalanga Province, a region critical to South Africa's energy production. Historically dominated by coal-fired power stations, the Majuba Cluster is an ideal location for introducing renewable energy technologies to complement or gradually replace existing coal infrastructure. This transition is pivotal in supporting South Africa's shift towards a more sustainable energy mix.

The project comprises several vital facilities, each selected for proximity to existing power stations and infrastructure, ensuring seamless integration into the national grid. The project's socio-economic impact on local communities within the area of influence is expected to be significant. Potential benefits include job creation during the construction and operational phases and opportunities for local businesses to supply goods and services. However, challenges may arise, such as increased demand for regional infrastructure and services, including housing, healthcare, and education. Changes in land use and the introduction of new infrastructure could also impact local economies, particularly in agricultural areas where the land might be repurposed or affected by the project's footprint.

The project's environmental influence extends beyond the immediate construction sites, affecting natural resources and ecosystems within the broader region. This includes potential impacts on local water resources, biodiversity, and air quality, especially during construction. The project sites, located in an area traditionally dominated by coal-based energy production,

may also lead to positive environmental changes, such as reduced carbon emissions and improved air quality, benefiting communities within the area of influence.

The project will impact land use and infrastructure in the Majuba Cluster, potentially altering existing patterns. This could affect agricultural activities, residential areas, and other land uses within the region of influence. While the proximity to existing power stations and infrastructure is a strategic advantage for grid integration, the development may also place additional pressure on local infrastructure, such as roads and transportation networks, particularly during construction.

Construction activities and an influx of workers may alter the social dynamics of communities within the area of influence. If not appropriately managed, this could lead to positive outcomes, such as increased economic activity and potential challenges, including social tensions or conflicts. The project's influence on local communities will also be shaped by ongoing engagement and consultation processes, which are crucial for addressing concerns and ensuring that the benefits are equally distributed.

Finally, the Renewstable Qhakaza project is part of the region's larger cluster of renewable energy developments. When combined, the cumulative impact of these projects could have a broader influence on regional development, energy supply stability, and the transition towards more sustainable energy sources. Assessing these cumulative impacts is essential for understanding the full scope of the project's influence on the area and ensuring that mitigation measures are effectively implemented.

3.2.5. Expected Outcomes and Benefits

The Renewstable Qhakaza project is expected to deliver several significant outcomes, including:

- **Increased Renewable Energy Capacity:** The project will add substantial renewable energy capacity to the South African grid, helping to meet the country's growing energy demand.
- **Job Creation and Economic Development:** The construction, operation, and maintenance of the Renewstable facilities are expected to create numerous job opportunities, particularly in the local communities surrounding the project sites. This will contribute to economic development in the Mpumalanga region.
- **Environmental Sustainability:** By reducing reliance on coal-fired power generation, the project will reduce South Africa's carbon footprint, supporting global efforts to combat climate change.

- **Technological Innovation:** The project will position South Africa as a leader in adopting hydrogen energy storage technology, showcasing the country's commitment to innovative and sustainable energy solutions.

5. Regulation and Policy Framework

5.1 Regulatory Environment

Legislation and policy both play an integral role in the process required to identify and assess the potential social impacts that might be associated with projects. Legislation and policy assist an SIA in determining a given development's fit with crucial planning and policy documents of the Government, the district, and local municipalities. Therefore, by assessing relevant legislation and policy, one of the SIA" 's purposes should be to indicate whether a proposed development in its current format conforms to spatial development plans and economic policies by creating development opportunities.

The project was founded on assessing South Africa's institutional and legislative frameworks. This framework will, in turn, provide an impact rating and identify mitigation measures. The Local Municipality IDP Plan needs to be more active about the role of private energy purchase agreements.

a. ***THE CONSTITUTION OF THE REPUBLIC OF SOUTH AFRICA***

The Constitution of South Africa (Act No 108 of 1996) is the cornerstone of democracy in South Africa. Chapter 2 outlines the Bill of Rights, which includes Section 24 that states: Everyone has the right a) to an environment that is not harmful to their health or well-being, and b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that:

i. prevent pollution and ecological degradation,
ii. promote conservation, and
iii. secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development. Section 24 thus requires that all activities that may significantly affect the environment and require authorisation by law must be assessed before approval.

b. NATIONAL ENVIRONMENTAL MANAGEMENT ACT (NO107 OF 1998)

The National Environmental Management Act (No 107 of 1998) (as amended) is the primary piece of legislation in South Africa that governs all matters related to the protection and

conservation of the environment. This Act sets out in Chapter 1 the National Environmental Management Principles, which, amongst other things, states that:

- (2) *Environmental management must place people and their needs at the forefront of its concern and equitably serve their physical, psychological, developmental, cultural, and social interests.*
- *(3) Development must be socially, environmentally, and economically sustainable.*
- *(4) (a) Sustainable development requires the consideration of all relevant factors, including the following: (viii) that negative impacts on the environment and people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied.*
- *4(b) Environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated, and it must consider the effects of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option.*
- *4(h) Community well-being and empowerment must be promoted through environmental education, raising environmental awareness, sharing knowledge and experience and other appropriate means.*
- *4(i) The social, economic and environmental impacts of activities, including disadvantages and benefits, must be considered, assessed and evaluated, and decisions must be appropriate in the light of such consideration and assessment."*

NEMA also establishes the platform for ensuring Integrated Environmental Management (IEM), whose objective includes:

- *23 -2(b) identify, predict and evaluate the actual and potential impact on the environment, socio-economic conditions and cultural heritage, the risks and consequences and alternatives and options for mitigation of activities to minimise negative impacts, maximising benefits, and promote compliance with the principles of environmental management.*
- *24 (1) To give effect to the general objectives of integrated environmental management laid down in this Chapter, the potential impact on—*
  (a) the environment,
  (b) socio-economic conditions and
  (c) the cultural heritage,

activities that require authorisation or permission by law and which may significantly affect the environment must be considered, investigated, and assessed before their implementation and reported to the organ of state charged by statute with authorising, permitting, or otherwise allowing the implementation of an activity."

The above excerpts of the Act strongly focus on addressing social issues to ensure sustainable environmental management.

c. ***The National Heritage Resources Act***

The Act primarily protects historical, cultural, archaeological, and paleontological resources, placing the developer responsible for reporting any objects or material to the accountable heritage resources authority. Also of relevance to this project, the Act legislates that no person may alter or demolish any structure or part of a structure (older than 60 years) or disturb any archaeological or paleontological site or grave (older than 60 years) without a permit issued by the relevant provincial heritage resources authority. A permit is required to destroy, damage, excavate, alter, or deface archaeological or historically significant sites.

d. ***The Development Facilitation Act of 1995***

The Development Facilitation Act significantly affects the SEIA process regarding national planning and requirements. Specific planning principles that are applicable include but are not limited to (quoted from Barbour, 2007: p.18):

- We are promoting the integration of the social, economic, institutional, and physical aspects of land development.
- Optimising using existing resources relating to agriculture, land, minerals, bulk infrastructure, roads, transportation, and social facilities.
- Contributing to the correction of the historically distorted spatial patterns of settlement in the Republic and the optimum use of existing infrastructure over current needs.
- Encouraging environmentally sustainable land development practices and processes.
- Promoting the establishment of viable communities; and
- Promoting sustained protection of the environment.

4.2 Energy Policy Environment

The policy review provides insight into government socio-economic objectives, plans, and applicable Energy in South Africa legislation. This assists in determining the project's importance and alignment with the developmental objectives of various government spheres.

The policy analysis also attempts to identify potential developmental conflicts and social impacts the project might create.

The electricity generation mix powers in the South African economy is transitioning, with coal to be significantly replaced by wind and solar generation capacity, from an installed capacity of 71% coal and 7.2% wind and solar in 2018 to 43% coal and 33.8% wind and solar in 2030 (IRP 2019). The South African Government's National Development Plan (NDP) is the blueprint for infrastructure development to 2030. The NDP lays out a framework for future power generation in South Africa, while energy policies in South Africa are driven primarily by the Department of Mineral Resources and Energy's (DMRE) Integrated Resource Plan (IRP). The IRP is DMRE's estimate of electricity demand growth, what energy generation types should be procured to meet that demand, and the generation capacity, timing, and cost. The IRP is an electricity infrastructure development plan based on the least-cost electricity supply and demand balance, considering the security of supply and the environment (minimising harmful emissions and water usage).

The IRP envisages a total addition to electricity capacity of 29,500 MW by 2030, led by renewables (notably 14,400 MW from wind and 6,000 MW from solar photovoltaic).
On 17 January 2023, the DMRE announced further amendments to Section 3 of Schedule 2 of the Electricity Regulation Act 4 of 2006 (the "Act"), following earlier changes to the Act in 2021 that raised the generation license threshold from 1 MW to 100 MW.[1]

Private power producers have two options for transferring electricity from their plants to their clients.

a. The generation facility supplies electricity to one or more customers by Wheeling (i.e. the transfer of electricity from the point of connection of the generation facility to the grid to the end of consumption through a third-party transmission network), and the generator has entered into a Connection agreement with an entity that holds a transmission or distribution license in respect of the power system over which the electricity will be wheeled; or
b. The generation facility has a connection point to the grid but does not import or export electricity onto or from the transmission or distribution power system.

Many energy policies support the transition from coal to clean energy and are part of the country's energy strategy. As part of the assessment, the following has been reviewed.

[1] https://shorturl.at/dpBCK

The South Africa Integrated Resource Plan was revised in 2019 (IRP), and the NDP emphasises the need to develop the electricity generation sector to support the growth of the national economy and reach its developmental objectives. The NDP recognises that the South African economy is "electricity-intensive"; consequently, increased generation capacity is essential for economic growth and development. Thus, the NDP aims to avoid financial crises, such as the energy crises experienced by the country since 2008, which have worsened, by developing new power generation capacity and involving independent power producers. Furthermore, managing the transition towards a low-carbon national economy is identified as one of the nine national challenges in the NDP.

The IRP 2019 allows for significant investment in distributed electricity technologies, typically where mines, farms, factories, and commercial operations invest in electricity generation capacity to secure reliable electricity supply, often at lower cost. Changes currently underway to promote such investment.

4.2.1 Energy Act (Act No 34 of 2008)

The National Energy Act, 2008 (Act 34 of 2008) ensures that diverse energy resources are available in sustainable quantities and at affordable prices in South Africa. In addition, the Act provides for the increased use of renewable energies, contingency energy supplies, the holding of strategic energy feedstock and carriers, and adequate investment in energy infrastructure.

4.2.2 White Paper on the Energy Policy, December 1998

The White Paper on Energy Policy was developed to clarify government policy regarding the supply and consumption of energy for the next decade. It was intended to address all elements of the energy sector as soon as possible. This White Paper gives an overview of the South African energy sector's contribution to GDP, employment, taxes, and the balance of payments. The industry can significantly contribute to a successful and sustainable national growth and development strategy.

The main objectives of the White Paper are the following: -

- Increasing access to affordable energy services.
- Improving energy governance.
- Stimulating economic development.
- Managing energy-related environmental impacts.
- Securing supply through diversity

4.2.3 White Paper on Renewable Energy

The White Paper on Renewable Energy supplements the Government's overarching policy on energy as set out in its White Paper on the Energy Policy (as stated above), which pledges' *Government support for developing, demonstrating, and implementing renewable energy sources for both small and large-scale applications.* This White Paper outlines the Government's vision, policy principles, strategic goals and objectives for promoting and implementing renewable energy in South Africa. Additionally, it has the following two goals:

- to inform the public and the international community of the Government's goals, and how the Government intends to achieve them, and
- to inform government agencies and Organs of State of these goals and their roles in achieving them.

4.2.4 Integrated Energy Plan (2016)

The IRP is an electricity infrastructure development plan based on the least cost supply and demand balance, considering the security of supply and the environment (minimising harmful emissions and water usage). When the IRP 2010-2030 was promulgated in March 2011, it was envisaged that it would be revised frequently due to the increasing demand for electricity in South Africa. The IRP and Ministerial Determinations issued in terms of Section 34 of the Electricity Regulation Act No. 4 of 2006 help investors plan their investments in the country's energy sector. It is used as a roadmap to meet the country's electricity demand. To update and address gaps in the assumptions made in the IRP2010-2030, the Department reviewed and revised the IRP and extended the review period to2050. The update process aimed to ensure the electricity supply's security, minimise the cost of electricity, minimise adverse environmental impact (emissions) and minimise water usage.

4.2.5 Integrated Resource Plan

The integrated resource plan (IRP) is an electricity capacity plan that aims to indicate the country's electricity demand, how it will be supplied, and what it will cost. On 6 May 2011, the Department of Energy (DoE) released the Integrated Resource Plan 2010-2030 (IRP 2010) concerning South Africa's forecasted energy demand for the 20 years from 2010 to 2030. The IRP 2010 was intended to be a 'living plan' periodically revised by the DoE. However, this was never done, and it resulted in an energy mix that failed to adequately meet the constantly changing supply and demand scenarios in South Africa. It must also reflect global technological advancements in efficient and responsible energy generation.

Following a lengthy public participation and consultation process, the Integrated Resource Plan 2019 (IRP 2019) was gazetted on 18 October 2019. It updates the energy forecast for

South Africa from the current period to 2030. The IRP is an electricity capacity plan that indicates the country's electricity demand, how it will be supplied, and what it will cost.

Since the promulgated IRP 2010, the following capacity developments have taken place. 6 422MW under the government-led Renewable Energy Independent Power Producers Programme (RE IPP Procurement Programme) has been procured, with 3 876MW currently operational and made available to the grid. In addition, IPPs have commissioned 1 005MW from two Open Cycle Gas Turbine (OCGT) peaking plants. Under the Eskom build programme, the following capacity has been commissioned: 1 332MW of Ingula pumped storage, 1 588MW of Medupi, 800MW of Kusile and 100MW of Sere Wind Farm. In total, 18 000MW of new generation capacity has been committed to.

4.2.6 The Climate Change Policy Framework (CCPF)

The Climate Change Policy Framework (CCPF) in South Africa is a strategic initiative designed to address the country's response to the global climate crisis. It sets out policies and measures to mitigate the impacts of climate change while ensuring sustainable development and resilience. The framework seeks to reduce greenhouse gas emissions by transitioning to a low-carbon economy, focusing on key sectors such as energy, transportation, and agriculture.

A vital principle of the CCPF is adaptation, which involves strengthening the country's ability to cope with climate-related risks such as droughts, floods, and extreme weather events. The policy encourages the development of climate-resilient infrastructure, the promotion of water and food security, and the protection of biodiversity. Another critical element is mitigation, which prioritises the reduction of carbon emissions through adopting renewable energy, energy efficiency, and the decarbonisation of industries.

In addition to environmental goals, the framework incorporates social and economic dimensions, ensuring that the transition to a low-carbon economy is equitable and inclusive. It promotes job creation in green sectors and supports vulnerable communities disproportionately affected by climate change. The Climate Change Policy Framework aligns with South Africa's international commitments under the Paris Agreement. It provides a roadmap for integrating climate considerations into national policies, development plans, and sectoral strategies, ensuring South Africa can meet its climate targets while fostering long-term economic resilience.

4.2.7 Green Economy Strategy

The Green Economy Strategy in South Africa focuses on promoting sustainable development by integrating environmental sustainability with economic growth. Its fundamental principles include fostering low-carbon, resource-efficient, and socially inclusive economic activities. The strategy encourages the transition to renewable energy, sustainable agriculture, and eco-friendly industrial processes to reduce environmental degradation and greenhouse gas emissions. It prioritises investment in green technologies, creating jobs in sectors such as renewable energy, waste management, and water conservation. Additionally, the strategy supports innovation, aiming to build a resilient economy that can adapt to environmental challenges while ensuring equitable access to resources and opportunities for all citizens, particularly in disadvantaged and rural areas. By aligning economic growth with sustainability, the Green Economy Strategy aims to achieve long-term prosperity while protecting the environment.

4.2.8 The Renewable Energy Independent Power Producer Procurement Programme

The Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) is a key initiative by the South African government aimed at driving the development of renewable energy by involving private sector energy producers. Launched in 2011, REIPPPP was designed to address the country's growing energy demand while reducing its reliance on fossil fuels and decreasing carbon emissions. The programme facilitates the procurement of renewable energy from private developers through a transparent bidding process, where independent power producers (IPPs) compete to provide energy to the national grid.

One of the significant features of REIPPPP is the long-term Power Purchase Agreements (PPAs) that it offers to successful bidders, providing financial security and stability to renewable energy projects. This mechanism encourages investment by reducing risks associated with energy projects. In addition to increasing renewable energy capacity, REIPPPP promotes socio-economic development by ensuring that some project benefits, such as jobs and community investments, go to local communities, particularly those in underdeveloped rural areas where many of these projects are located.

The programme has successfully attracted both local and international investors, positioning South Africa as a leader in renewable energy development in Africa. Through REIPPPP, a wide range of renewable energy technologies have been implemented, including solar, wind, biomass, and small-scale hydroelectric projects, contributing significantly to the country's renewable energy targets and climate change mitigation efforts.

4.2.9 The Just Energy Transition Framework

The Just Energy Transition (JET) Framework is a key policy initiative in South Africa to ensure a fair and equitable shift from a coal-based energy system to a cleaner, low-carbon economy. Given South Africa's heavy reliance on coal, particularly in regions like Mpumalanga, the JET Framework seeks to balance urgent climate action with the social and economic impacts on workers, communities, and industries dependent on coal.

At the core of the JET Framework is the principle of social justice, ensuring that the transition to renewable energy does not disproportionately harm vulnerable communities. This involves supporting coal workers and their communities through reskilling programmes, job creation in emerging green industries, and investment in new economic opportunities. The framework emphasises collaboration between government, industry, and civil society to ensure that the benefits of the energy transition are distributed equitably across society.

The JET Framework also invests in renewable energy infrastructure, including solar, wind, and energy storage projects, to accelerate South Africa's transition to a low-carbon economy. By driving growth in these sectors, it aims to create sustainable jobs and reduce the country's reliance on coal while contributing to global climate change mitigation efforts.

Overall, the JET Framework is designed to ensure that South Africa's energy transition is inclusive, socially responsible, and aligned with both national development goals and international climate commitments, particularly those outlined in the Paris Agreement. It positions South Africa as a leader in addressing both environmental sustainability and social equity during the shift to a greener economy.

4.2.10 Operation Phakisa (Energy Focus)

Operation Phakisa (Energy Focus) is a South African government initiative designed to accelerate the implementation of key energy projects to address the country's energy challenges, particularly the need for reliable, sustainable, and affordable energy. Launched under the broader Operation Phakisa framework, which focuses on the rapid implementation of projects across various sectors, the energy component aims to fast-track energy infrastructure development, especially in renewable energy and energy efficiency.

The Energy Focus under Operation Phakisa addresses critical issues such as energy security, diversification of the energy mix, and reducing reliance on coal-fired power generation. A key priority of this initiative is the expansion of renewable energy projects, including wind, solar, and hydropower, to enhance South Africa's energy capacity while meeting its climate change commitments. By fast-tracking regulatory approvals, procurement processes, and project

execution timelines, the initiative aims to deliver energy solutions more efficiently and effectively.

Additionally, the programme seeks to bolster public-private partnerships to attract investment into the energy sector, supporting the transition towards a more sustainable energy landscape. Operation Phakisa (Energy Focus) also emphasises ensuring that energy projects contribute to local economic development, job creation, and social upliftment, particularly in underdeveloped areas. This initiative is aligned with South Africa's National Development Plan (NDP) 2030. It supports the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) by removing barriers to energy infrastructure development and ensuring a more rapid deployment of clean energy projects to stabilise the energy grid and promote long-term energy sustainability.

4.3 National Development Plan

The National Development Plan (NDP) is a comprehensive roadmap to eradicate poverty and diminish inequality in South Africa by 2030. Within this ambitious Framework, the NDP identifies nine key challenges and proposes corresponding remedial plans. Among these challenges, the imperative to navigate the transition towards a low-carbon national economy stands out prominently. Recognising the importance of addressing environmental concerns and fostering sustainability, the NDP emphasises effectively managing this transition.

As a strategy within this overarching goal, the expansion and acceleration of commercial renewable energy take centre stage. The NDP underscores the critical role of renewable energy in steering the nation towards a more sustainable and environmentally friendly trajectory. By prioritising developing and integrating renewable energy sources into the national energy mix, South Africa aims to meet its developmental objectives and contribute to global efforts in mitigating climate change.

The NDP's focus on managing the transition towards a low-carbon national economy and a commitment to expanding commercial renewable energy reflects a visionary approach. This approach aligns with global sustainability goals and positions South Africa as a proactive participant in the international movement towards a greener and more equitable future.

4.4 The New Growth Path Framework

The New Economic Growth Path Framework is designed to boost growth, create employment, and promote equity in South Africa. At the core of this Framework lies a substantial commitment to investing in infrastructure, recognising it as a catalyst for job creation across

diverse sectors of the economy. This strategic emphasis on infrastructure investment is a crucial driver for economic development.

The Framework specifies five crucial areas for targeted investments: energy, transport, communication, water, and housing. These sectors are essential pillars for sustained economic growth and employment generation. The New Growth Path Framework seeks to address critical developmental needs, create jobs, and enhance the financial landscape by channelling significant resources into these areas.

Furthermore, the New Growth Path Framework identifies five additional priority areas through collaborative initiatives between the Government and the private sector. Notably, the Green Economy stands out as one of these priority areas, underscoring its significance in job creation. The Green Economy initiative aims to stimulate employment by expanding construction activities and producing cutting-edge solar, wind, and biofuel technologies. Clean manufacturing and environmental services are anticipated to be significant contributors, with a projected creation of 300,000 jobs over the next decade.

The New Growth Path Framework reflects a comprehensive and strategic approach to economic development, intertwining infrastructure investment with targeted initiatives in critical sectors. By prioritising the Green Economy, the Framework aligns with global sustainability goals and positions South Africa to harness economic growth while promoting environmental stewardship and job creation in the emerging green industries.

4.5 Mpumalanga Vision 2030

The Mpumalanga Vision 2030 supports the Renewstable Qhakaza project through several key elements that align with the province's objectives for sustainable economic and social development. The project, focused on renewable energy, plays a vital role in meeting these goals by contributing to clean energy generation, job creation, and environmental sustainability. The following are the elements of Mpumalanga Vision 2030 that support the Renewstable Qhakaza project:

- **Transition to a Low-Carbon Economy**: Supports the shift from coal-based energy to renewable energy, reducing carbon emissions and improving environmental health.
- **Infrastructure Development**: Enhances energy infrastructure, providing reliable access to clean energy that supports economic and social growth.
- **Job Creation and Skills Development**: Creates employment opportunities and promotes workforce upskilling in the renewable energy sector.

- Environmental Sustainability: Contributes to sustainable development by reducing reliance on fossil fuels and mitigating climate change impacts.
- Rural Development and Inclusive Growth: Fosters economic development and infrastructure improvements in rural areas, contributing to equitable growth.
- Public-Private Partnerships: Demonstrates effective collaboration between government and private sector to achieve shared development goals.
- Energy Security and Resilience: Diversifies the energy mix and reduces risks of energy shortages, improving the province's energy resilience.

4.6 Key Driver for Renewstable Qhakaza Plant

4.6.1 The Demand for Renewable Energy in South Africa

The Social Impact Assessment (SIA) report addresses the pressing relationship between South Africa's increasing electricity demand and the current challenges in power supply, rising costs, and heightened risks. Urgent measures are required. Eskom is called upon to develop and deploy tailored capacity rapidly, while mining entities must strategically manage their energy demands through innovative project design.

Energy plays an essential role in the success of mining ventures, transforming raw materials into economic contributions for the South African economy. The report emphasises the need for energy to meet specific quality standards, be competitively priced, and ensure a consistent and reliable supply. Currently, coal dominates South Africa's energy system, but the 2019 Integrated Resource Plan envisions diversification by 2030 for a more sustainable and socially equitable transition.

Due to electricity scarcity, interruptions, and escalating prices, South Africa faces increased risks. As production scales up, addressing these risks becomes more urgent. While Eskom's role in planning new capacity is crucial, mines must also adopt strategies for optimising energy demands through innovative project design. The report underscores that energy must meet specific quality standards, fair pricing, and continuous supply, like any consumable commodity.

Due to their strategic importance, fossil fuel and electrical energy in South Africa are subject to national oversight. The effectiveness of oversight functions significantly influences energy supply growth and security. However, limited alternative energy sources at scale and competitive pricing pose challenges. The report notes that the current refining capacity of fossil

fuels is at its limits, and oversight will determine how surplus capacity is introduced and priced to ensure the security of supply. This dynamic trade-off will persist as energy planning on mines aligns with the pricing of South African energy options.

South Africa's energy landscape boasts abundant coal reserves and a developed nuclear power plant. The critical imperative is the timely and strategic development of energy sources to meet market demands without compromising the strategic nature of energy supply. Continuous assessment and pricing considerations will be crucial as the energy planning landscape on mines evolves amidst the dynamic South African energy options.

4.6.2 The business case for Renewstable Mpumalanga

The business case for the Renewstable Qhakaza project is built on its strategic alignment with South Africa's national energy goals, economic viability, and the potential to deliver significant environmental and social benefits. Located within the Majuba Cluster, a region historically dominated by coal-fired power stations, the project plays a crucial role in the country's transition to a sustainable energy mix. Leveraging existing infrastructure reduces capital expenditure and ensures efficient integration into the national grid, making it attractive to investors. The integration of hydrogen energy storage technology enhances grid stability and positions the project as a leader in innovative energy solutions.

The project promises substantial revenue through long-term power purchase agreements while creating jobs and stimulating economic development in the Mpumalanga Province. Environmentally, it contributes to significant reductions in carbon emissions, aligning with global sustainability goals. Socially, the project engages local communities, offering development opportunities and improving quality of life. Supported by a favourable regulatory environment and scalability potential, the Renewstable Qhakaza project is well-positioned to deliver long-term value and contribute meaningfully to South Africa's energy future.

Aligned with the Government's commitment to reducing reliance on greenhouse-emitting energy sources, the project supports the Integrated Resource Plan (IRP), National Development Plan (NDP), and National Greenhouse Gas Pollution Prevention Framework (NGPF). The National Energy Act emphasises the need for diverse and sustainable energy resources at affordable prices, which the project supports by contributing to economic growth and poverty alleviation while considering environmental management.

The project also aligns with the White Paper on Energy Policy for South Africa, recognising the commercial potential of renewables and addressing the historical neglect of renewable energy development. As a signatory of the Copenhagen Accord, South Africa's commitment to reducing greenhouse gas emissions by 34% aligns with the project's goals. By promoting renewable energy sources, the project ensures energy security through supply diversification, supports the long-term sustainability objectives outlined in the National Energy Act, and contributes to establishing a renewable energy industry that produces sustainable modern energy carriers.

4.6.3 Alignment with Developmental Initiatives

The Renewstable Qhakaza project serves as an example of how renewable energy initiatives can support both national and global priorities for sustainable development. By delivering clean energy and fostering socio-economic development, the project is closely aligned with South Africa's national and provincial policies, including the Integrated Resource Plan, the National Development Plan, and Mpumalanga Vision 2030. Additionally, the project contributes to global frameworks such as the United Nations Sustainable Development Goals and the Paris Agreement on climate change. Through its focus on environmental sustainability, job creation, and rural development, Renewstable Qhakaza reinforces the importance of a just transition to a low-carbon economy, highlighting the role of renewable energy in driving inclusive and sustainable growth.

Developmental Initiatives	Description
Integrated Resource Plan (IRP) 2019	Renewstable Qhakaza supports the IRP's goal of diversifying South Africa's energy mix by increasing the share of renewable energy. By contributing clean energy to the grid, the project helps reduce the country's reliance on coal and lower greenhouse gas emissions.
Renewable Energy Independent Power Producer Procurement Programme	The project benefits from REIPPPP by participating in the programme's transparent bidding process, which provides access to long-term Power Purchase Agreements (PPAs). This ensures financial sustainability and contributes to private sector-driven renewable energy development.
National Development Plan 2030	Renewstable Qhakaza aligns with the NDP's objectives of economic growth, job creation, and environmental sustainability. It creates employment opportunities in the

	renewable energy sector, supports rural development, and contributes to reducing South Africa's carbon footprint.
Just Energy Transition Framework	The project is in line with the JET Framework's vision of an equitable transition from coal to renewable energy. By creating green jobs in Mpumalanga, a coal-dependent region, Renewstable Qhakaza supports alternative livelihoods for coal industry workers and promotes social equity.
Operation Phakisa (Energy Focus)	Operation Phakisa's emphasis on fast-tracking energy projects and public-private partnerships aligns with Renewstable Qhakaza's development timeline. The project contributes to improving energy security and diversifying energy sources, which are key goals of Operation Phakisa.
Green Economy Strategy	The project contributes to the Green Economy Strategy's objectives of low-carbon development and sustainable economic growth. By utilizing renewable energy technologies, it promotes resource efficiency, reduces environmental degradation, and helps build a greener economy.
Climate Change Policy Framework	Renewstable Qhakaza aligns with the CCPF's focus on reducing carbon emissions and mitigating the effects of climate change. The project contributes clean energy, helping South Africa meet its climate targets under the Paris Agreement while promoting resilience to climate change impacts.
Mpumalanga Vision 2030	As part of Mpumalanga's vision to transition to a low-carbon economy and foster rural development, the project supports the region's goals by creating jobs, building renewable energy infrastructure, and promoting sustainable economic development in rural areas.
Sustainable Development Goals	The project aligns with multiple United Nations Sustainable Development Goals, including: • **SDG 7**: Affordable and Clean Energy, by providing clean, renewable energy to the grid.

	• **SDG 8**: Decent Work and Economic Growth, through job creation in the renewable energy sector. • **SDG 13**: Climate Action, by reducing carbon emissions and promoting sustainability.

4.6.4 Opportunities and Challenges for Renewstable Qhakaza

The Renewstable Qhakaza project presents a transformative opportunity within South Africa's renewable energy sector, aligning with key national and global sustainability goals. Positioned to contribute significantly to the country's clean energy transition, the project also aims to drive socio-economic development, particularly in the rural Mpumalanga region. By generating employment, fostering skills development, and supporting rural upliftment, Renewstable Qhakaza demonstrates the potential for renewable energy projects to not only address energy security challenges but also promote inclusive growth. However, the project must navigate several challenges, including regulatory compliance, grid connectivity, and ensuring community engagement, to realise its full potential fully.

Opportunities:

a. **Contribution to Energy Security:** The project has the potential to help South Africa diversify its energy mix, reduce reliance on coal, and provide cleaner, renewable energy to the national grid. This supports national efforts to improve energy security and mitigate frequent power shortages.
b. **Job Creation and Skills Development:** Renewstable Qhakaza offers significant employment opportunities, particularly in the rural Mpumalanga region. The construction and operation of the renewable energy facility will create jobs and promote skills development in the growing green energy sector, helping to address local unemployment.
c. **Alignment with National Policies:** The project aligns with national initiatives such as the Integrated Resource Plan (IRP), National Development Plan (NDP), and the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP), ensuring policy support and regulatory alignment, which facilitates project execution and investment.
d. **Environmental Benefits:** By producing clean energy, the project contributes to reducing greenhouse gas emissions, supporting South Africa's climate change

commitments under the Paris Agreement. This will improve air quality and contribute to broader environmental sustainability goals.

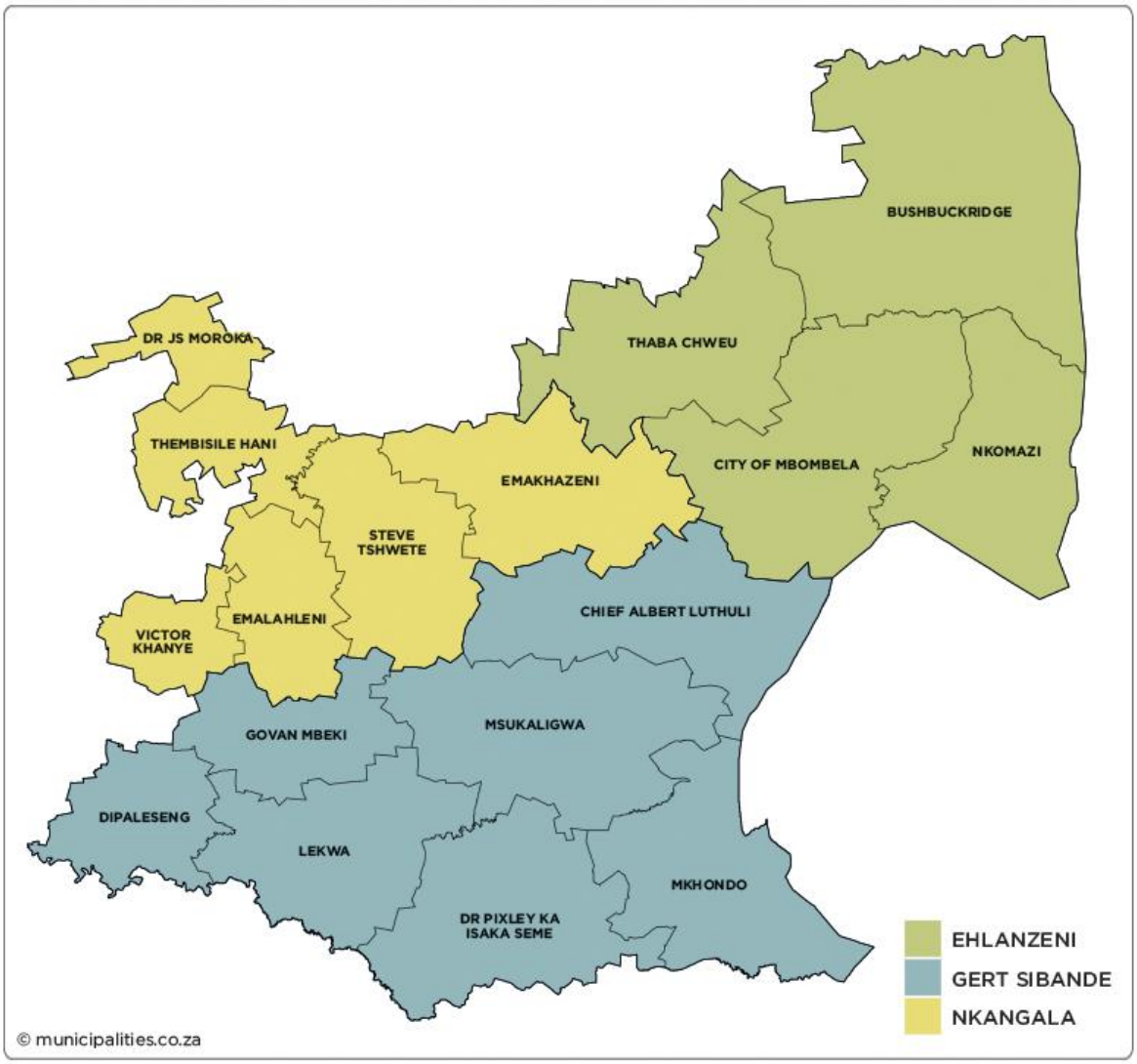
e. **Economic Growth and Rural Development:** Renewstable Qhakaza can drive local economic growth by fostering infrastructure development in rural areas. By supporting local businesses and communities, the project has the potential to promote inclusive growth and uplift underdeveloped regions.
f. **Public-Private Partnerships:** The project benefits from partnerships between the government and the private sector, ensuring access to financial resources, technical expertise, and innovative technologies, which can enhance the project's success and scalability.

Challenges:

a. **Regulatory and Permitting Delays:** Navigating the regulatory landscape, including securing environmental permits, land use approvals, and other legal requirements, may delay the project. Ensuring compliance with all regulatory frameworks can be time-consuming and complex.
b. **Grid Connectivity Issues:** Ensuring efficient connectivity to the national grid may pose technical challenges. Given South Africa's ageing grid infrastructure, integrating renewable energy projects like Renewstable Qhakaza may require additional investments in transmission capacity and upgrades.
c. **Social and Economic Displacement:** Although the project promotes job creation, there may be concerns about the potential displacement of workers from traditional energy sectors like coal mining, particularly in Mpumalanga. Managing the social transition for affected communities and ensuring that new jobs are created for those displaced by the energy shift is crucial.
d. **Financial and Investment Risks:** While the project is eligible for funding under programmes like **REIPPPP**, it remains vulnerable to fluctuations in investment, changes in government policy, and market conditions, which could affect financing and project viability.
e. **Community Engagement and Acceptance:** Securing buy-in from local communities and managing expectations regarding employment and socio-economic benefits can be challenging. The project must maintain transparent communication and ensure local communities see tangible benefits to foster long-term support.
f. **Climate Resilience:** As a renewable energy project, Renewstable Qhakaza must consider the long-term impacts of climate change, such as extreme weather conditions, which could affect the project's operational efficiency and energy production capacity.

6. Description of the Demographic Population

This section presents the socio-economic aspects focusing on the Province and Municipalities within the proposed study area.



5.1 Provincial Description of the Proposed Study Area- Mpumalanga

Mpumalanga, located in northeastern South Africa, is a province known for its scenic landscapes and rich cultural diversity. With Mbombela (formerly Nelspruit) as its capital, Mpumalanga features a variety of geographical landscapes, from the rugged escarpments of the Drakensberg Mountains to the lush, subtropical Lowveld plains. The province has significant natural attractions, including parts of the iconic Kruger National Park, which draws eco-tourists and wildlife enthusiasts worldwide.

According to Census 2022, Mpumalanga has a 5 143,324 million population. The population is predominantly black African, accounting for 90.7%, while Whites make up about 7.5% of the population. The province contributed about 8% towards the country's GDP in 2022. SiSwati (30,5%), IsiZulu (27,8%), Xitsonga (10,6%), Sepedi (10,3%) and IsiNdebele (9,9%) are the most spoken languages in the province. Mpumalanga's cultural heritage is celebrated through traditional music, dance, and art, representing the diverse ethnic groups, including the Swazi, Zulu, Ndebele, and Pedi communities.

Economically, Mpumalanga is driven by agriculture, mining, and tourism. The province is one of South Africa's key agricultural regions, producing crops such as maise, sugarcane, and citrus fruits, and it is also a significant centre for forestry. Mining is another cornerstone of the economy, with Mpumalanga being a substantial source of coal and other minerals like gold and platinum. Despite its economic strengths, the province faces challenges such as unemployment, poverty, and the need for infrastructure development, particularly in rural areas.

Regarding socio-economic status, Mpumalanga struggles with inequality and joblessness, with 66.4% of the working population working. While there have been economic advancements, the province continues to require focused initiatives on education, skills development, and job creation to improve the livelihoods of its residents. Programs aimed at sustainable development and community upliftment are crucial for addressing these socio-economic challenges.

Regarding services, approximately 93.7% of Mpumalanga's residents have access to electricity, and 47% report having access to piped water within their dwellings. However, like other provinces in South Africa, Mpumalanga faces significant challenges due to load shedding, which disrupts essential services such as telecommunications and water supply. Despite these obstacles, Mpumalanga remains rich in natural beauty and cultural depth, with significant growth and sustainable development potential.

However, Mpumalanga faces several social challenges that hinder the development of its communities. These include:

a. Unemployment and Poverty

Unemployment is one of the most pressing social issues in Mpumalanga, with the province historically experiencing high rates, particularly among the youth. This widespread

unemployment exacerbates poverty, as many households rely on limited income sources or social grants. A substantial portion of the population lives below the poverty line, and the lack of job opportunities, especially in rural areas, contributes to a persistent cycle of poverty and social exclusion.

b. Education and Skills Development

Educational attainment is another significant challenge. While there have been improvements in access to education, issues persist regarding the quality of teaching and high dropout rates. Mpumalanga has struggled with relatively low matric pass rates, and many young people need to be adequately prepared for the job market due to gaps in quality education and relevant skills training. This skills gap limits economic mobility and exacerbates social inequalities.

c. Health Challenges

Health issues are a significant concern in Mpumalanga, with high rates of HIV/AIDS, tuberculosis (TB), and non-communicable diseases (NCDs). The province has a high HIV prevalence, which has wide-ranging social and economic implications, including reduced productivity, increased healthcare costs, and significant strain on families and communities. Additionally, healthcare infrastructure, particularly in rural areas, is often inadequate, leading to challenges in accessing timely and quality healthcare services.

d. Social Inequality and Service Delivery

Social inequality is a persistent challenge, with significant disparities in income, access to services, and living conditions between urban and rural areas. Many rural communities lack essential services such as clean water, sanitation, and electricity, leading to poor living conditions and adverse health outcomes. Service delivery protests have been frequent in the province, reflecting widespread dissatisfaction with the pace and quality of government services, particularly in areas like housing, road infrastructure, and access to essential services.

e. Crime and Social Cohesion

Crime is a critical issue, with high levels of violent crime, including assault, robbery, and domestic violence. These crimes severely impact social cohesion, creating environments of fear and insecurity. The high crime rates are often linked to broader social and economic conditions, such as unemployment, poverty, and substance abuse. Domestic violence, in particular, remains pervasive, with many cases going unreported due to stigma and a lack of support services.

5.2 Gert Sibanda District Municipality

Gert Sibande District Municipality, situated in the southern region of Mpumalanga Province, South Africa, is a crucial area known for its cultural diversity, economic significance, and varied landscapes. Named after the anti-apartheid activist Gert Sibande, the District is home to 1,283 459 million people, according to the 2022 Census. The population is predominantly black African, accounting for about 93.6%, with a mix of other ethnic groups, including Whites, who make up around 5% of the population and Indian and coloured with 0.15% of the total population. The most spoken languages are isiZulu (36.5%), followed by Siswati (25.7%) and Afrikaans (11.3%), reflecting the region's rich cultural mosaic.

Economically, Gert Sibande is one of Mpumalanga's most significant districts, driven by its agricultural solid, mining, and energy sectors. The district is a central agricultural hub, producing large quantities of maise, soybeans, and livestock. These farming activities are vital for local consumption and the broader South African market. The mining sector, particularly coal mining, is a cornerstone of the district's economy. Gert Sibande is one of South Africa's largest coal-producing regions, with coal mining providing substantial employment and contributing significantly to the national economy. The presence of several Eskom-operated power stations, including the Kendal and Kriel power stations, further underscores the district's role in powering the nation's energy grid.

Despite its economic strengths, Gert Sibande faces considerable socio-economic challenges. Unemployment remains a pressing issue, with a significant portion of the population needing help to access sustainable employment opportunities. Additionally, there are disparities in

access to essential services, particularly in rural areas. According to recent data, approximately 91.8% of households in Gert Sibande have access to electricity, which is relatively high. However, only 56.5% of households have access to piped water inside their dwellings, indicating a significant gap in water service delivery that needs urgent attention to improve living conditions and support sustainable development.

Agriculture remains a critical sector in Gert Sibande, with the region's fertile lands and favourable climate supporting a diverse range of crops. Maise and soybeans are the primary crops, while livestock farming, including cattle, sheep, and poultry, plays a significant role in the local economy. The agricultural sector is vital for food security and employs the value chain, contributing to rural development and poverty alleviation. Embracing sustainable farming practices is essential for ensuring the long-term viability of this sector and the well-being of the communities that depend on it.

The combination of Gert Sibande District Municipality's economic potential, cultural diversity, and natural resources positions it as a vital area within Mpumalanga. However, addressing socio-economic challenges, particularly in service delivery and employment, is crucial for unlocking the region's full potential and ensuring equitable and sustainable development for its residents.

5.3 Dr Pixley Ka Isaka Seme Local Municipality

Dr Pixley Ka Isaka Seme Local Municipality is one of the seven local municipalities within the Gert Sibande District Municipality. It is named after Dr. Pixley ka Isaka Seme, a founding member of the African National Congress (ANC). The area is primarily rural, with a low population density, and agriculture is the dominant economic activity. The municipality is also involved in coal mining, but to a lesser extent than other parts of the district.

Dr. Pixley Ka Isaka Seme Local Municipality has a total population of 115,304 individuals. The gender distribution within the municipality is slightly skewed, with females making up 52% of the population, while males account for 48%. Educational institution attendance among individuals aged 5 to 24 years stands at 70.6%, indicating significant school and tertiary education engagement in this age group. Additionally, 89.7% of municipal households reside in formal dwellings, reflecting a relatively high standard of housing infrastructure across the area.

Socioeconomic challenges in Dr Pixley Ka Isaka Seme include high levels of unemployment, inadequate access to essential services such as water and sanitation and limited economic opportunities. The area's dependence on agriculture makes it vulnerable to climate change and other environmental challenges. Efforts to stimulate economic growth often focus on improving infrastructure, enhancing agricultural productivity, and promoting small-scale industries.

Challenges within Dr Pixley Ka Isaka Seme Municipality

The Dr. Pixley Ka Isaka Seme Local Municipality faces several significant challenges, many of which are backed by local statistics:

- High unemployment: The unemployment rate in the area remains elevated, particularly among youth, with over 30% of the working-age population unemployed.
- Poverty levels: A large proportion of the population lives below the poverty line, exacerbated by limited access to stable employment.
- Infrastructure challenges: Access to essential services like water and electricity is limited in rural areas, with over 25% of households lacking proper sanitation facilities.

- Education and skills: Low matriculation pass rates and insufficient skills development programs hinder economic mobility, limiting local job opportunities.

5.3.1 Municipal IDP Plan Alignment with the Proposed Development (2022-2027)

The alignment of a Municipal Integrated Development Plan (IDP) with a proposed development is crucial to ensure that the development meets local needs, contributes to municipal goals, and adheres to regulatory frameworks. Below is a general approach to how a proposed development can align with a municipal IDP, mainly focusing on local economic development, service delivery, and sustainability.

- **Environmental sustainability** must be integrated into the project, ensuring compliance with local environmental regulations and contributing to climate change mitigation.
- The development should support the **Local Economic Development (LED) strategy** by fostering job creation, supporting local businesses, and exploring public-private partnerships (PPPs).
- **Community engagement and stakeholder participation** are essential to ensure the development addresses local needs and concerns, aligning with the IDP's emphasis on inclusive planning.
- The development should contribute to the **municipality's Spatial Development Framework (SDF)** by promoting spatial integration, efficient land use, and alignment with identified infrastructure corridors.

The proposed Renewstable Qhakaza development aligns with the Integrated Development Plan (IDP) for Dr Pixley Ka Isaka Seme Local Municipality by contributing to municipal goals such as infrastructure development, economic growth, and environmental sustainability. The project supports the municipality’s objectives to diversify its economy through renewable energy projects, generate local employment, and improve service delivery. Additionally, the emphasis on green infrastructure and job creation will help address socio-economic challenges identified in the IDP, such as unemployment and poverty reduction.

5.3.2 Land Capabilities and Use

Land use within the municipality supports various activities, including agriculture, mining, residential development, and conservation. In this context, thoughtful planning ensures that land is used effectively, benefiting the community and the environment while promoting economic growth and social integration.

- **Agriculture**: Agriculture dominates land use in rural areas, particularly crop production and livestock farming. These activities are vital for local food security and economic stability, and much of the rural land is dedicated to agriculture and grazing.
- **Mining**: Mining activities, especially in areas rich in coal deposits, contribute significantly to land use and the district's economic activity. Mining operations affect land allocation, requiring dedicated extraction, processing, and associated infrastructure zones.
- **Residential Areas**: Land use for residential purposes varies from formal housing developments in urban towns to informal settlements in rural peripheries. These residential areas require careful planning to ensure access to essential water, electricity, and transportation services.
- **Conservation**: Some portions of land may be allocated to conservation efforts, especially in areas with significant biodiversity or near critical water resources. Conservation areas are essential for protecting the environment and maintaining the ecological balance in the region.
- **Urban Development**: Urban development is concentrated in towns and urban centres within the municipality. The land is allocated for commercial, residential, and industrial use, supporting economic activities while providing housing and services for the local population.

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5.3.3 Economic Landscape

The municipality's economic landscape is shaped by various sectors, including agriculture, mining, manufacturing, and services, which collectively drive local economic activity. These sectors are vital for employment, income generation, and overall economic growth, but they also present challenges that must be addressed for sustainable development.

- Agriculture: Agriculture remains a dominant sector, particularly in rural areas. The municipality produces maise, soybeans, vegetables, and livestock farming. Agriculture provides food security, creates employment opportunities, and supports local agribusiness. However, the sector faces challenges such as fluctuating climate conditions, water scarcity, and the need for modern farming techniques. Agriculture contributes approximately 15% to the municipality’s GDP, accounting for around 30-35% of total employment.
- Mining: The municipality is in a region rich in mineral deposits, especially coal, which plays a significant role in local and national economic activity. Mining provides substantial employment and generates considerable revenue. However, it also poses

environmental challenges, particularly regarding land degradation and water pollution, which require careful management through sustainable practices. Mining contributes roughly 30% to the municipality's GDP and accounts for around 20-25% of employment, with many jobs concentrated in coal-rich areas.

- Manufacturing and Industry: Manufacturing supports economic diversification in the municipality, mainly through processing agricultural and mineral products. The development of light industry and small manufacturing enterprises provides additional employment opportunities. Manufacturing contributes about 10% to the municipality's GDP and employs approximately 10-15%.
- Public Services and Retail: The services sector, which includes retail, education, healthcare, and public administration, significantly contributes to the municipality's economy. Urban centres serve as hubs for commercial activity, providing essential goods and services to urban and rural populations. Retail is mainly growing in larger towns, driven by increased consumer demand and urbanisation. The services sector contributes approximately 25% to the municipality's GDP and accounts for around 25-30% of employment, with most jobs located in urban and peri-urban areas.
- Tourism and Conservation: In areas where conservation efforts are prioritised, tourism plays a role in the local economy. Natural reserves and biodiversity hotspots attract visitors, supporting eco-tourism and job creation in the hospitality and services sectors. Tourism contributes around 5% to the municipality's GDP and is responsible for 5-10% of total employment, with significant potential for growth through investment in infrastructure and marketing.

Despite these sectors' contributions, the municipality faces ongoing challenges such as high unemployment, income inequality, and infrastructure deficits. The overall unemployment rate is estimated at 30-35%, with youth unemployment often exceeding 50%. Addressing these issues requires economic diversification, skills development, and infrastructure investment. The municipality's economic strategy must also balance resource extraction with sustainable practices while enhancing sectors like tourism and services to create a more resilient economy.

7. Contribution to the Socio-Economic Development

The Renewstable Qhakaza project, focused on renewable energy and sustainability, holds significant potential for contributing to the socio-economic development of the Mpumalanga province. This contribution can be seen in various areas, including economic growth, job

creation, skills development, community upliftment, and environmental sustainability. The DoE IPP2015 status report refers to the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) design to enable it to "capture a share of the value/prosperity from the programme for South Africans and local communities". The proposed vital areas where the development could contribute to socio-economic development.

a. Job Creation

Developing and operating renewable energy infrastructure creates both direct and indirect job opportunities. During construction, jobs are created in engineering, construction, and logistics. Once operational, jobs in maintenance, operations, and monitoring are sustained. The project also supports ancillary industries, such as manufacturing components for renewable energy systems, contributing to broader employment growth within the region.

Developing and operating renewable energy infrastructure contributes significantly to job creation, directly and indirectly. Drawing on data from similar renewable energy projects within South Africa's Renewable Energy Independent Power Producer Procurement Programme (REIPPPP), a detailed estimate of the potential employment impact for a renewable energy project in Mpumalanga, such as the proposed Renewstable Mpumalanga, can be provided.

Direct Job Creation: Construction Phase

During the construction phase of renewable energy projects, many jobs are created. These jobs are typically temporary, lasting for the construction period, ranging from 12 to 24 months. Critical roles during this phase include:

- **Engineering and Technical Jobs**: Civil and electrical engineers, project managers, and design professionals.
- **Construction Jobs**: Skilled and unskilled labour, electricians, welders, heavy equipment operators, and other construction workers.
- **Logistics and Support Jobs**: Transportation, warehousing, and supply chain management.

Estimated Job Creation in Construction:

The Renewstable Qhakaza project is estimated to create around 300 jobs during the construction phase. These jobs primarily focus on semi-skilled and unskilled local workers, contributing significantly to regional employment. This phase will also provide opportunities for skills development in the renewable energy sector, further enhancing the local workforce's capabilities. The project aligns with local economic development goals by not only providing direct employment but also generating indirect job opportunities through its supply chain and related services.

Direct Job Creation: Operational Phase

Once operational, renewable energy projects require a smaller but steady workforce to manage day-to-day operations. These jobs are typically long-term and include roles in:

- **Maintenance and Operations**: Technicians, electrical engineers, and maintenance staff are responsible for maintaining and performing the energy systems.
- **Monitoring and Control**: Specialists overseeing system performance, energy production, and grid integration.
- **Administrative and Support Roles**: Administration, security, and general site management roles.

Estimated Job Creation in Operations:

During the operational phase of the Renewstable Qhakaza project, it is estimated that around 35 permanent jobs will be created. These positions will focus on the maintenance, monitoring, and operational management of the renewable energy facility, ensuring the ongoing efficiency and sustainability of the project. These jobs will also offer long-term employment opportunities, contributing to the local economy and providing continuous skills development in the renewable energy sector, aligning with the project's broader socio-economic goals.

Indirect Job Creation

Indirect jobs are created due to the increased demand for goods and services from local suppliers and businesses supporting the renewable energy project. These jobs can be found in:

- **Manufacturing**: Production of solar panels, wind turbine components, and other renewable energy technologies.
- **Local Supply Chains**: Increased demand during the construction and operational phases benefits suppliers of construction materials, catering services, and transport services.
- **Service Industries**: The influx of workers and contractors benefits local businesses, such as restaurants, accommodation providers, and retail outlets.

Estimated Indirect Job Creation:

- The Renewstable Qhakaza project is expected to generate significant indirect job creation through its supply chain and related services. Based on industry standards, indirect jobs are often estimated to be 1.5 to 2 times the number of direct jobs. With around 300 direct jobs created during construction, an additional 450-600 indirect jobs could be generated in sectors such as logistics, manufacturing, catering, and

accommodation, benefiting local businesses and service providers in the community. These jobs will support broader economic growth and development.

- Over the project's operational lifetime, indirect job creation could support local businesses by providing a steady demand for services and contributing to sustained regional economic development.

Ancillary Industries and Long-Term Job Growth

In addition to direct and indirect jobs, renewable energy projects often stimulate the development of ancillary industries. These include:

- **Component Manufacturing**: Facilities producing parts for solar panels, wind turbines, and other renewable technologies. This can contribute to long-term job creation in the manufacturing sector.
- **Research and Development**: The growing renewable energy sector fosters innovation and R&D activities, creating high-skilled jobs in technology development, energy storage, and smart grid solutions.
- **Education and Training**: As renewable energy expands, educational institutions may develop programs to train new workers in green technologies, creating jobs in education and skills development.

The project's construction, operation, and maintenance phases are anticipated to generate job opportunities, with a dedicated 30% of the total workforce dedicated to being sourced locally. Priority for employment will be given to individuals from the host communities, followed by residents in the surrounding areas within a 50-kilometer radius. This intentional approach seeks to maximise the positive impact on the immediate community, promoting economic growth and fostering a sense of community involvement. Extending these employment opportunities to neighbouring communities within the 50-kilometre radius further ensures that a broader population can benefit from the socio-economic advantages.

b. Local Business Opportunities

The project implementation promises opportunities to local businesses, suppliers, and service providers. By actively engaging these local enterprises, the project can become a driving force for economic growth, nurturing a thriving business ecosystem in its vicinity as part of enterprise and supply development. This collaborative approach is designed to invigorate economic activities, empower local entrepreneurship, and bolster the overall financial well-being of the surrounding community. Furthermore, in alignment with the Renewable Energy Independent Power Producer (REIP) Programme, a proposed 30% allocation has been outlined, demonstrating a commitment to inclusive economic development and fostering sustainability.

c. Skills Development

Renewstable Qhakaza contributes to upskilling the local workforce by providing training and development in renewable energy technologies. This skills transfer equips local communities with the knowledge required to participate in the growing renewable energy sector, enhancing employability and fostering a skilled workforce in a transitioning economy.

d. Community Infrastructure Development

Through socio-economic development contributions, the project has the potential to contribute to community infrastructure, including enhancements to roads, schools, and healthcare facilities. This contribution is envisioned to result in improved living conditions and increased access to essential services for the local population. By investing in and upgrading critical community infrastructure, the project aims to leave a lasting positive impact on residents' overall well-being and quality of life in the project's vicinity.

e. Community Upliftment

The project supports local communities through various Corporate Social Responsibility (CSR) initiatives, such as education, healthcare, and infrastructure investments. These initiatives improve the quality of life for residents and help address social challenges, such as poverty and inequality. The project promotes social cohesion and community empowerment by engaging with communities and creating opportunities for inclusive participation.

f. Reduction of Energy Inequality

Introducing renewable energy infrastructure improves access to electricity, particularly in under-served and rural areas. This enhancement in energy access supports economic activities, improves educational outcomes by providing reliable power for schools, and raises the overall standard of living in communities that previously lacked access to affordable and stable electricity.

g. Environmental Sustainability

By promoting renewable energy, Renewstable Qhakaza directly contributes to reducing greenhouse gas emissions and mitigating the impacts of climate change. This environmental focus ensures sustainable economic development, balancing growth with environmental preservation. Furthermore, the project aligns with South Africa's national and international commitments to reduce carbon emissions and transition towards a low-carbon economy.

h. Community Engagement and Consultation

The project may involve community engagement and consultation processes, ensuring that local perspectives are considered in decision-making. This fosters a sense of inclusion and ownership among community members.

Effective collaboration between project developers, local communities, and relevant stakeholders is crucial to maximise these contributions. Implementing responsible and inclusive practices can amplify the positive socio-economic impacts of the Renewstable Qhakaza project.

8. Socio-Economic Factors for the Proposed Study Area

7.1 International Standards

The assessment of the Renewstable Qhakaza project in alignment with the International Finance Corporation (IFC) and Equator Principles marks a pivotal step in ensuring the sustainable and responsible development of renewable energy infrastructure. As the world embraces the imperative of transitioning towards cleaner and more sustainable energy sources, the Renewstable Qhakaza project promises to contribute significantly to South Africa's energy landscape. This assessment evaluates the project's adherence to the IFC's stringent environmental and social standards and the Equator Principles, which serve as a benchmark for responsible financing in large-scale projects. By examining the project through the lenses of these globally recognised frameworks, we aim to ascertain the potential positive and negative impacts on the environment, local communities, and the overall socio-economic fabric. The commitment to aligning with these principles underscores the project's dedication to achieving energy diversification and reliability, environmental sustainability, and social responsibility. Through this assessment, we endeavour to foster transparency, accountability, and the integration of best practices, ensuring that the Renewstable Qhakaza project stands as a responsible and sustainable renewable energy development model.

7.1.1 IFC Performance Requirements

The IFC Sustainability Framework articulates the IFC's strategic commitment to sustainable development and is an integral part of IFC's approach to risk management. The Framework incorporates the IFC's Policy, Performance Standards and Access to Information Policy. Alongside the Performance Standards is a companion set of Guidance Notes, guiding clients in meeting the Performance Standards. The Framework was adopted in 2006 and updated in 2012 following an 18-month consultation with stakeholders worldwide.

The Performance Standards are directed towards clients, guiding the identification of risks and impacts. They are designed to help avoid, mitigate, and manage risks and impacts as a way of doing business sustainably. These include stakeholder engagement and disclosure obligations of the client concerning project-level activities." IFC Performance Standards 2012."

To translate this objective into successful practical outcomes, the IFC has adopted a comprehensive set of performance standards as follows:

- Performance Standard 1: Assessment & Management of Environmental and Social Risks and Impacts
- Performance Standard 2: Labour and Working Conditions
- Performance Standard 3: Resource Efficiency and Pollution Prevention
- Performance Standard 4: Community Health, Safety and Security
- Performance Standard 5: Land Acquisition and Involuntary Resettlement
- Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources
- Performance Standard 7: Indigenous Peoples
- Performance Standard 8: Cultural Heritage

7.2 Discussion on the Social Impacts

Given the alignment between the IFC and Equator Principles, the primary guidelines will be the IFC standards concerning Equator Principles. This strategic approach ensures comprehensive adherence to both principles, leveraging the strengths of the IFC standards while incorporating the specific considerations outlined in the Equator Principles. This dual application aims to enhance the project's overall sustainability and responsible implementation, aligning with globally recognised best practices in environmental and social risk management.

7.2.1 Assessment & Management of Environmental and Social Risks and Impacts

The Renewstable Qhakaza project is currently in the impact assessment phase, where potential environmental and social impacts are being assessed to determine their severity. This evaluation is essential for informed decision-making and the development of mitigation strategies.

The assessment encompasses land use, biodiversity, air and water quality, cultural heritage, and the impact on local communities. The objective is to identify and manage these impacts effectively in alignment with IFC PS1, ensuring the project's sustainability and adherence to social responsibility principles.

7.2.2 Labour and Working Conditions

The Renewstable Qhakaza project has significant implications for labour and working conditions, particularly during its construction and operational phases. The project's adherence to international labour standards, specifically those outlined in IFC Performance Standard 2 (PS2), will play a critical role in ensuring that fair and safe working conditions are upheld.

Key Impacts on Labour and Working Conditions

a. **Employment Opportunities**

- **Job Creation**:

The project is expected to generate many employment opportunities, particularly during construction. This will provide much-needed jobs in the local community, helping to reduce unemployment in the region. However, there is a risk of imbalanced employment distribution, where local communities may not fully benefit from job creation if preference is given to outside labour.

The Renewstable Qhakaza project is projected to generate substantial employment opportunities during its construction and operational phases. During construction, approximately 300 jobs will be created, focusing primarily on semi-skilled and unskilled local workers from Mpumalanga, which will significantly contribute to local employment. In the operational phase, around 35 permanent jobs will be maintained, ensuring long-term job creation and retention of skills within the renewable energy sector. This employment aligns with broader regional goals of promoting socio-economic upliftment and supporting local economic development in the Province and Municipality.

Estimating indirect jobs created by the Renewstable Qhakaza project involves considering jobs generated through the supply chain and local services. Based on industry standards for renewable energy projects, it is common for indirect job creation to amount to about 1.5 to 2 times the number of direct jobs. With around 300 jobs during construction, the project could create an additional 450 to 600 indirect jobs in sectors like manufacturing, logistics, hospitality, and local services. This includes jobs related to the production of materials, transportation, and support services. Procurement of Materials: Local suppliers will be needed to provide construction materials, such as steel, concrete, and electrical components.

- **Skill Development**

The project presents a valuable opportunity for local workers to acquire new skills and gain hands-on experience in the renewable energy sector, which is critical for long-term

employability in this growing industry. However, preparing the local workforce to meet the technical demands of the project may require substantial efforts in training and upskilling. This process involves providing workers with specialised knowledge and practical skills that align with the needs of the renewable energy industry, ensuring they are equipped to perform their roles efficiently and safely. Additionally, collaboration with local training institutions and government support may be necessary to bridge skills gaps and deliver targeted programs that empower workers to succeed in this sector. Overcoming these challenges will enhance the project's positive impact on local employment and contribute to the broader goal of developing a skilled workforce for South Africa's energy transition.

b. Working Conditions

Working conditions encompass several aspects of the environment where employees perform their duties, such as occupational health and safety (OHS), compensation, and working hours. In the Renewstable Qhakaza project, maintaining high OHS standards is critical, especially in construction, where workers risk accidents and exposure to hazardous materials. Ensuring workers have personal protective equipment (PPE), appropriate training, and a safe environment is essential. Additionally, ensuring fair working hours and compensation is crucial to avoid exploitation, particularly for subcontractors or temporary workers. These efforts are vital in promoting a fair and safe working environment.

c. Non-Discrimination and Equal Opportunity

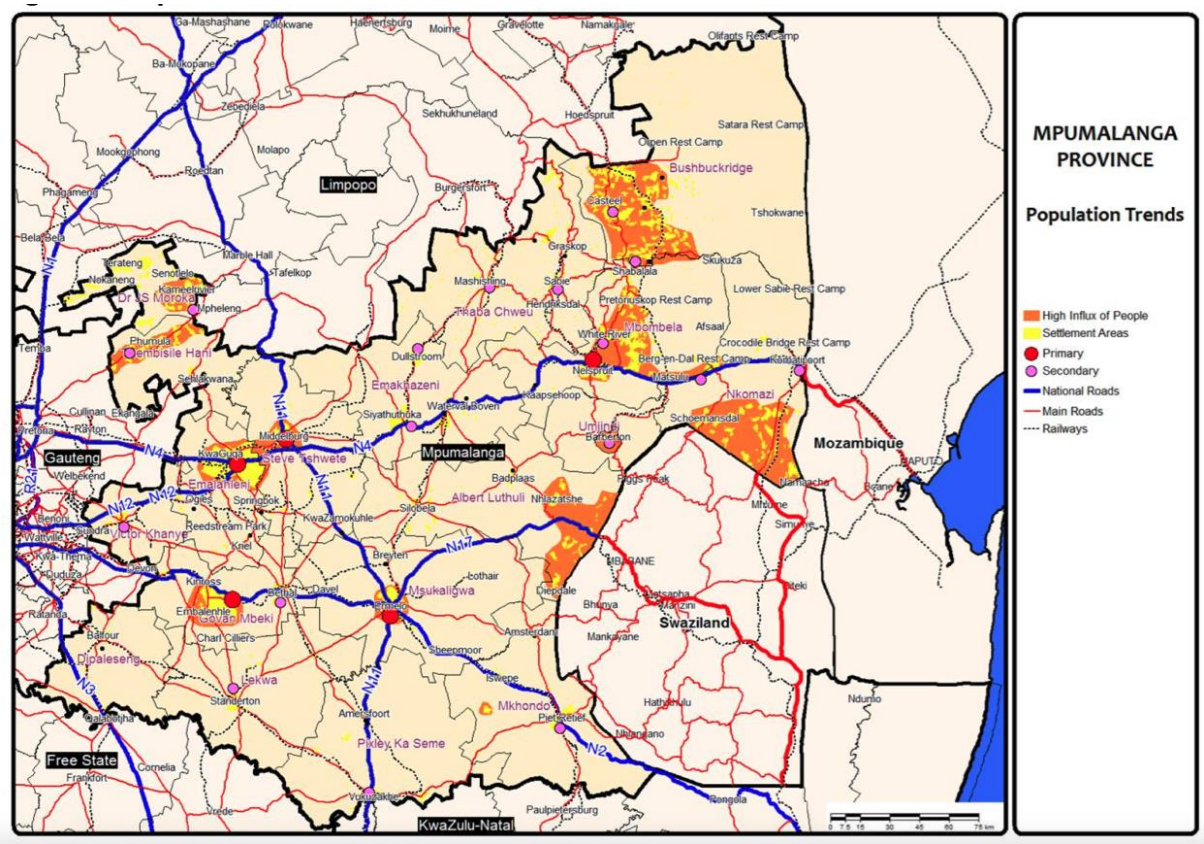
Ensuring that employment opportunities are available to all community members without discrimination is crucial for the success of the Renewstable Qhakaza project. The hiring process must be transparent, fair, and inclusive, adhering to non-discrimination policies that protect individuals based on race, gender, nationality, and other factors. The project must implement robust policies to guarantee equal access to jobs and promote diversity, ensuring that recruitment practices comply with legal requirements and ethical standards for fair employment practices.

d. Freedom of Association

Workers should have the right to form or join trade unions or other representative bodies without fear of retaliation. However, challenges may arise, particularly in areas where union representation is limited, or workers are unfamiliar with their rights. In such contexts, ensuring workers feel empowered to exercise these rights can be difficult. To address this, the project should foster a supportive environment by providing awareness programs and ensuring workers understand their rights, promoting transparency and protection against discrimination or retaliation.

e. Labour Influx and Local Community Tensions

The influx of migrant labour in projects like Renewstable Qhakaza can potentially lead to tensions with the local community, especially regarding employment opportunities. The project will bring over 300 workers, including both national and international employees, which presents a mix of opportunities and challenges. The Majuba area in Mpumalanga has long been accustomed to an influx of migrant workers, primarily due to significant energy projects like the Majuba Power Station and its supporting infrastructure. The community has experienced mixed reactions to these inflows. However, the Map below does not show the Pixley Ka seme municipality experiencing influx challenges.



The influx of workers for the Renewstable Qhakaza project presents several opportunities for the local community.

- Firstly, skills transfer from experienced workers can improve the expertise of local employees, particularly in the renewable energy sector.
- Secondly, increased spending by the incoming workforce will stimulate the local economy, benefiting businesses such as retail stores, restaurants, and accommodation providers.

- Finally, the project can drive infrastructure development, including improvements in housing, roads, and utilities, which will not only support the incoming workforce but also have long-term benefits for the local population.

While the Renewstable Qhakaza project brings economic benefits, challenges may arise from local resentment toward migrant workers.

- Perceived job competition and housing shortages could lead to tensions between local and migrant workers.
- Services such as healthcare and education may face greater demand, impacting local communities.
- Additionally, ensuring social integration is crucial to prevent divisions and maintain harmony.

To mitigate these issues, the project must adopt inclusive hiring practices, ensuring a fair distribution of jobs between locals and migrants while providing adequate housing. Further, fostering positive social relationships through community support programs will help reduce tensions and promote workforce integration.

f. Subcontracting and Supply Chain Management

There is a risk that subcontractors or suppliers involved in the Renewstable Qhakaza project may not adhere to the same labour standards as the main contractor, potentially leading to inconsistent working conditions. This could include poor working environments, inadequate compensation, or exploitation of workers further down the supply chain. Challenges such as ensuring compliance with fair labour practices, monitoring safety standards, and upholding workers' rights are crucial in this province, where disparities in enforcement and economic pressures can increase the likelihood of non-compliance. Proper oversight and strict adherence to labour laws are necessary to prevent these issues.

Furthermore, some subcontractors may hire migrant labour without proper documentation as a cost-cutting measure, further exposing workers to exploitation and unsafe conditions. This practice risks legal non-compliance and undermines fair labour standards, requiring strict oversight to ensure adherence to labour laws and ethical hiring practices.

7.2.3 Community Health, Safety, and Security

The development and operation of the Renewstable Qhakaza project can affect the local community's health, safety, and security. The following outlines the anticipated impacts and proposed mitigation measures:

a. Community Health Impacts

- Air Quality: The construction phase may temporarily impact air quality due to dust and emissions from construction equipment and vehicles. This could exacerbate respiratory conditions, particularly in vulnerable populations such as the elderly, children, and those with pre-existing health conditions.
- Water Quality: The project's water usage, particularly the draw from municipal water supplies, may impact the local community's availability and quality of water. Increased demand could strain the local water supply system, affecting the project and surrounding communities.
- Noise Pollution: Construction activities and operational machinery could lead to elevated noise levels, potentially disturbing residents and affecting their overall well-being, especially those near the project site.
- Potential increased health risks**:** Due to the influx of workers and changes in population dynamics, large-scale construction projects can increase the risk of infectious diseases.
    - The influx of workers into the area can increase the risk of spreading infectious diseases, including sexually transmitted infections (STIs) such as HIV/AIDS. Temporary worker camps and increased interactions between workers and the local population can create conditions conducive to spreading these diseases.
- Social disruptions caused by the influx of workers and the potential displacement of residents can also contribute to mental health issues such as anxiety, depression, and social isolation.
- Prolonged exposure to glare from solar panels may pose a minor risk to residents living near the Renewstable Qhakaza project, particularly those within a 5-10 km radius. This glare can cause visual discomfort and, in some cases, temporary eye strain, especially for individuals exposed over extended periods. The intensity and angle of the sunlight reflecting off the panels could increase the risk, particularly for nearby homes or frequent passersby. However, modern solar panel technology often includes anti-reflective coatings to minimise glare, reducing the overall impact on the community. Proper planning and positioning of the panels can further mitigate these risks.

b. Community Safety Impacts

- Traffic and Road Safety: The increased movement of heavy vehicles and construction traffic could pose safety risks to the local community, particularly on roads not designed for high traffic volumes. This could increase the likelihood of traffic accidents, posing a danger to pedestrians and other road users.
- Public Safety Risks: Construction and operational activities could create hazards, such as unsecured construction sites, which may attract curious community members, particularly children, leading to potential accidents or injuries.

c. Security Impacts

- Local Crime and Security Risks: The influx of workers, particularly non-local workers, could increase petty crime or social tensions within the local community. The workforce may strain local services and create a sense of insecurity in the community.
- Protection of Project Assets: There may be potential security risks to project assets, particularly during construction, which could lead to conflicts between the local community and security personnel employed by the project.

8.2 4 Land Acquisition and Involuntary Resettlement

The development of the Renewstable Qhakaza project will necessitate land acquisition, which may lead to the displacement of landowners and communities, resulting in potential socio-economic and livelihood impacts. The project's adherence to IFC Performance Standard 5 (PS5) on Land Acquisition and Involuntary Resettlement will ensure that any such impacts are managed responsibly, with appropriate compensation and rehabilitation measures in place.

Key Impacts of Land Acquisition and Involuntary Resettlement

a. Displacement of Landowners and Communities

- **Relocation of Farmers and Their Families**: The land identified for the project is currently used for farming, including livestock, game, and crop cultivation. Suppose the project proceeds, landowners, their families, and employees may need to relocate. This displacement can disrupt their lives and livelihoods, particularly for those who have deep-rooted connections to the land and the local community.
- **Impact on Livelihoods**: The livelihoods of farm employees, including seasonal workers and foreign nationals, may be significantly impacted. These workers depend on farming activities for their income, and relocation or job loss could pose economic

challenges. Additionally, foreign workers may need help securing alternative employment, increasing their vulnerability.

b. **Economic Displacement**

The project site's current use as an active sugarcane farm means its development into a power plant will displace existing agricultural activities. This displacement will directly affect the cultivation of crops and the associated economic activities that support the local farming community. This will contribute to, amongst others.

- **Loss of Agricultural Income**: The acquisition of agricultural land could result in the loss of income from farming activities. For landowners, this could affect their primary source of revenue, mainly if they are still looking for equivalent land or farming opportunities elsewhere.
- **Impact on Local Employment**: The displacement of farming operations may reduce local employment opportunities, particularly for farm workers. This could exacerbate unemployment in the region, further straining the local economy.
- **Economic Disruption:** The local economy, which benefits from selling and processing agricultural produce, will experience a disruption, potentially leading to decreased economic activity in the farming sector.

c. Economic Diversification and Support for Agri-Business- The project provides an opportunity to diversify the local economy by introducing industrial activities alongside traditional agriculture. This can reduce the region's economic dependence on agriculture and create new economic opportunities**.**

d. **Socio-Economic Impact on Farming Communities—**The project may have a socio-economic impact on farming communities, including shifts in employment patterns and changes in land use.

e. **Cultural Heritage Impacts-** The project will also affect graves, cultural sites or heritage areas associated with the land, impacting local communities' cultural identity and practices.

f. **Vulnerable Groups**

- **Impact on Foreign Nationals and Seasonal Workers**: Foreign and seasonal employees may be particularly vulnerable during resettlement. They may lack access to legal protections, alternative employment opportunities, and social safety nets, making them more susceptible to exploitation or economic hardship.
- **Potential Exploitation of Landowners**: Some landowners, particularly those with limited experience in land transactions, may be vulnerable to exploitation during

acquisition. They may accept offers below market value or need to understand their rights to fair compensation fully.

7.2.5 other impacts

a. Economic Growth and Diversification

The project implementation will stimulate local and regional economies by diversifying the economic base, thereby reducing the heavy dependence on traditional sectors such as agriculture.

The project presents significant opportunities for local businesses, suppliers, and service providers by actively involving them in its development and operational processes. This engagement can transform the project into a catalyst for economic growth, fostering a dynamic and prosperous business ecosystem in the surrounding area as part of an enterprise and supply development initiative.

The critical contribution will include:

- **Economic Stimulation:** The project's investment in local infrastructure and energy production will stimulate economic activity, attract further investments, and encourage the development of new businesses in the region.
- **Energy Diversification:** By adding a significant energy component to the local economy, the project reduces dependence on agriculture and boosts industrial activities. This diversification is crucial for enhancing economic stability and creating a more resilient economic environment.
- **Local Business Support**: Increased economic activity will benefit local businesses, from construction firms to suppliers and service providers, driving growth across various sectors and fostering a more dynamic regional economy.

b. Infrastructure Development

The Project has the potential to contribute to community infrastructure, including enhancements to roads, schools, and healthcare facilities through socio-economic development contributions. This contribution is envisioned to result in improved living conditions and increased access to essential services for the local population.

This will include

- Energy Infrastructure: Constructing a modern natural gas-fired power plant will enhance the reliability and stability of the local electricity supply, supporting residential, commercial, and industrial energy needs.

- Transport Infrastructure: Improvements in transport infrastructure, such as roads and access routes to the project site, will facilitate better connectivity and support economic activities by reducing transportation costs and travel times.

c. Energy Access

The Renewstable Qhakaza project is poised to significantly enhance energy access in the region, contributing to South Africa's broader energy transition goals and addressing local electricity supply challenges. This assessment outlines the project's potential impact on energy access and proposes strategies for maximising its benefits for local communities and the wider region.

- **Increased Electricity Supply**
  - **Enhanced Energy Reliability**: The project is expected to stabilise the local electricity grid by providing a consistent and renewable energy supply. This will reduce reliance on fossil fuels and help mitigate the impact of load shedding, a significant issue in South Africa.
  - **Renewable Energy Integration**: By integrating renewable energy sources such as solar and battery storage systems, the project will contribute to the diversification of the energy mix in the Mpumalanga region. This will support the shift towards more sustainable and environmentally friendly energy sources, helping to reduce the carbon footprint of the local energy supply.
- **Support for Local Economic Development**
  - Enabling New Economic Activities: Improved energy access can enable new economic activities, particularly in sectors such as agriculture, manufacturing, and tourism. For example, access to reliable electricity could support the development of agro-processing facilities, cold storage units, and other energy-intensive activities that require a stable power supply**.**

9. Screening and Risk Rating

The socio-economic impact assessment of the Renewstable Qhakaza project focuses on understanding the potential effects on a sensitive area that encompasses environmental and community considerations. This region is characterised by its ecological importance, cultural heritage, and the livelihoods of local communities, many of whom rely on the land for agriculture and subsistence. The assessment aims to evaluate the potential socio-economic risks and opportunities associated with the project, ensuring that development preserves the area's ecological integrity, respects the rights and well-being of local populations, and fosters sustainable economic growth. The goal is to balance progress with protecting this sensitive area, mitigating adverse effects while maximising positive outcomes for all stakeholders.

8.1 Rating Matrix

Status of Impact
The impacts are assessed as either having a:
negative effect (i.e., at a `cost' to the environment),
positive effect (i.e., a `benefit' to the environment), or
Neutral effect on the environment.

Extent of the Impact
(1) Site (site only),
(2) Local (site boundary and immediate surrounds),
(3) Regional (within the City of Johannesburg),
(4) National, or
(5) International.

Duration of the Impact
The length that the impact will last for is described as either:
(1) immediate (<1 year)
(2) short term (1-5 years),
(3) medium term (5-15 years),
(4) long term (ceases after the operational life span of the project),
(5) Permanent.

Magnitude of the Impact
The intensity or severity of the impacts is indicated as either:
(0) none,
(2) Minor,
(4) Low,
(6) Moderate (Social/environmental functions altered but continue),
(8) High (Social/environmental functions temporarily cease), or
(10) Very high / Unsure (Social/environmental functions permanently cease).

Probability of Occurrence
The likelihood of the impact actually occurring is indicated as either:
(0) None (the impact will not occur),
(1) improbable (probability very low due to design or experience)
(2) low probability (unlikely to occur),
(3) medium probability (distinct probability that the impact will occur),
(4) high probability (most likely to occur), or
(5) Definite.

Significance of the Impact
Based on the information contained in the points above, the potential impacts are assigned a significance rating (S). This rating is formulated by adding the sum of the numbers assigned to extent (E), duration (D) and magnitude (M) and multiplying this sum by the probability (P) of the impact.
S=(E+D+M) P

The significance ratings are given below.
(<30) low (i.e., where this impact would not have a direct influence on the decision to develop in the area),
(30-60) medium (i.e., where the impact could influence the decision to develop in the area unless it is effectively mitigated),

(>60) high (i.e., where the impact must have an influence on the decision process to develop in the area).

(a) Definition of significance rating

Significance of predicted NEGATIVE impacts		
No significance		**the impacts do not influence the proposed development and/or environment in any way.**
Low	**0-30**	**Where the impact will have a relatively small effect on the people /environment and will require minimal or no mitigation and as such have a limited influence on the decision**
Moderate	**31-60**	**Where the impact can have an influence on the people/environment and should be mitigated and as such could have an influence on the decision unless it is mitigated.**
High	**61-100**	**Where the impact will influence the people/environment and must be mitigated, where possible. This impact will influence the decision regardless of any possible mitigation.**

9.1.1 Screening Social Impact Sensitivity Results

Issue	Corrective measures	Impact rating criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Labour and Working Condition							
Occupational Health and Safety	No	Negative	1	2	8	3	Medium
	Yes	Negative	1	2	6	3	Medium
Mitigation Measures: • Comprehensive safety protocols should be established, including regular safety assessments, the provision of PPE, and mandatory health and safety training for all workers. • A culture of safety will be promoted across the project, with a focus on accident prevention and risk mitigation. • Continuous monitoring of working conditions should be implemented to ensure compliance with OHS standards. Any violations will be addressed promptly, with corrective measures taken to ensure worker safety.							
Working Conditions	No	Negative	1	4	8	3	Medium
	Yes		1	4	6	3	Medium
Mitigation Measures • Ensure compliance with all relevant labour laws, including those related to working hours, wages, and benefits. • Regular audits will be conducted to ensure that subcontractors and suppliers adhere to these standards as well • Robust grievance mechanisms will be established to allow workers to report concerns or violations confidentially. • implement policies to promote diversity and inclusion in the workforce, ensuring that employment opportunities are available to all qualified individuals, regardless of race, gender, or ethnicity. • Provide training programs on non-discrimination and equal opportunity will be provided to all workers and management, fostering an inclusive and respectful work environment. • Support workers' rights and ensure that workers are informed of their rights to organise and participate in trade unions or other representative bodies.							

Issue	Corrective measures	Impact rating criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Labour Influx	No	Negative	2	2	4	3	Low
	Yes	Positive	2	2	4	3	Low
Mitigation Measures • Policies will be established to manage the influx of non-local workers, including the provision of appropriate housing and support for social integration.							
Supply Chain Management	No	Negative	5	4	8	3	Medium
	Yes	Positive	5	4	4	3	Medium
Mitigation Measures: • The project will establish clear expectations and requirements for subcontractors and suppliers to comply with labour standards. • Regular audits and inspections will be conducted to ensure that all parties involved in the project adhere to fair labour practices.							
Community Health, Safety, and Security							
Community Health,	No	Negative	2	2	2	3	Low
	Yes	Negative	1	2	2	2	Low
Mitigation Measures • Management of Air quality, noise control and Water resource management as per the Specialist report in addition the following should be considered Air Quality o Implement dust suppression measures, such as water spraying on unpaved roads and construction sites, to minimize airborne dust. o air quality monitoring will be conducted to ensure compliance with health standards. Water resource management o Ensure efficient water use and seek alternative water sources, such as rainwater harvesting or recycling, to reduce reliance on municipal water supplies o Regular monitoring of water quality and usage will be conducted to ensure that the project does not negatively impact local water availability Noise Control							

Issue	Corrective measures	Impact rating criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
○ Noise levels will be controlled using sound barriers, scheduling construction activities during less sensitive hours • regular maintenance of equipment to reduce noise emissions. • Noise monitoring will be conducted to ensure compliance with acceptable levels.							
Community Safety	No	Negative	2	2	6	3	Medium
	Yes	Negative	2	2	4	2	Low
Mitigation Measures • Traffic Management Plan to be developed and implemented to regulate the movement of construction vehicles and ensure the safety of local road users. This will include designated routes for heavy vehicles, speed limits, and safety signage in high-traffic areas. • Engagement with local authorities will help ensure road safety for the community. • Construction sites to be secured with proper fencing, warning signs, and restricted access to prevent accidents. • Conduct Public awareness campaigns to inform the community about the dangers of entering construction zones, with particular attention to schools and community centres.							
Security	No	Negative	2	2	6	3	Medium
	Yes	Negative	2	2	4	2	Low
Mitigation Measures • Engage with local law enforcement and community leaders to develop appropriate security measures and protocols. • Training for security personnel will be conducted to ensure they operate in a manner that respects human rights and fosters positive relations with the community. • Regular communication and engagement with the local community will help address concerns about crime and security.							
Land Acquisition and Involuntary Resettlement							
Displacement of Landowners	No	Negative	1	5	6	3	Medium
	Yes	Negative	1	5	4	3	Medium

Issue	Corrective measures	Impact rating criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
and Farmworkers							
Mitigation Measures • **Fair and Transparent Land Acquisition Process** ○ Consultation with Landowners and Stakeholders in transparent and inclusive consultations with affected landowners and stakeholders. This will involve providing clear information about the land acquisition process, compensation packages, and relocation options. Landowners will be given the opportunity to negotiate fair compensation based on market value, ensuring that they are not exploited. ○ provided Legal Support and Advocacy to landowners who may lack experience in land transactions. This support will help ensure that they fully understand their rights and receive adequate compensation. Additionally, independent third-party oversight may be introduced to ensure fairness and transparency in the process.							
Economic Displacement-Loss of Agricultural income	No	Negative	1	5	8	3	Medium
	Yes	Negative	1	5	4	3	Medium
Mitigation Measures • **Compensation and Livelihood Restoration** ○ Ensure that all affected parties receive fair compensation in line with market rates. Compensation packages will consider not only the value of the land but also any lost income and potential relocation costs. ○ Implement livelihood restoration programs to help affected individuals and families restore or improve their economic situation. This may include providing training and support for alternative income-generating activities, access to new agricultural land, or financial assistance during the transition period. ○ Special attention will be given to vulnerable groups, such as foreign nationals and seasonal workers.							
	No	Negative	1	5	8	3	Medium

Issue	Corrective measures	Impact rating criteria					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Local Employment-loss of farming job	Yes	Negative	1	5	6	3	Medium

Mitigation Measures

- **Livelihood Restoration Programs**
  - Special attention will be given to vulnerable groups, such as foreign nationals and seasonal workers.
  - Job Placement Assistance working closely with local authorities and employment agencies to provide job placement services for displaced farmworkers. Efforts will be made to prioritise their employment within the Renewstable project, particularly in roles related to construction, maintenance, and operations.
  - Displaced workers can be offered retraining and upskilling programs to help them transition to new roles in the renewable energy sector or other industries.
- Support for Small-Scale Farming Alternatives
  - Alternative Agriculture Initiatives **f**or those interested in continuing agricultural activities, the project will provide support for transitioning to alternative, smaller-scale farming initiatives.

Cultural Heritage	No	Negative	1	5	8	3	Medium
	Yes	Negative	1	5	4	3	Medium

Mitigation Measures

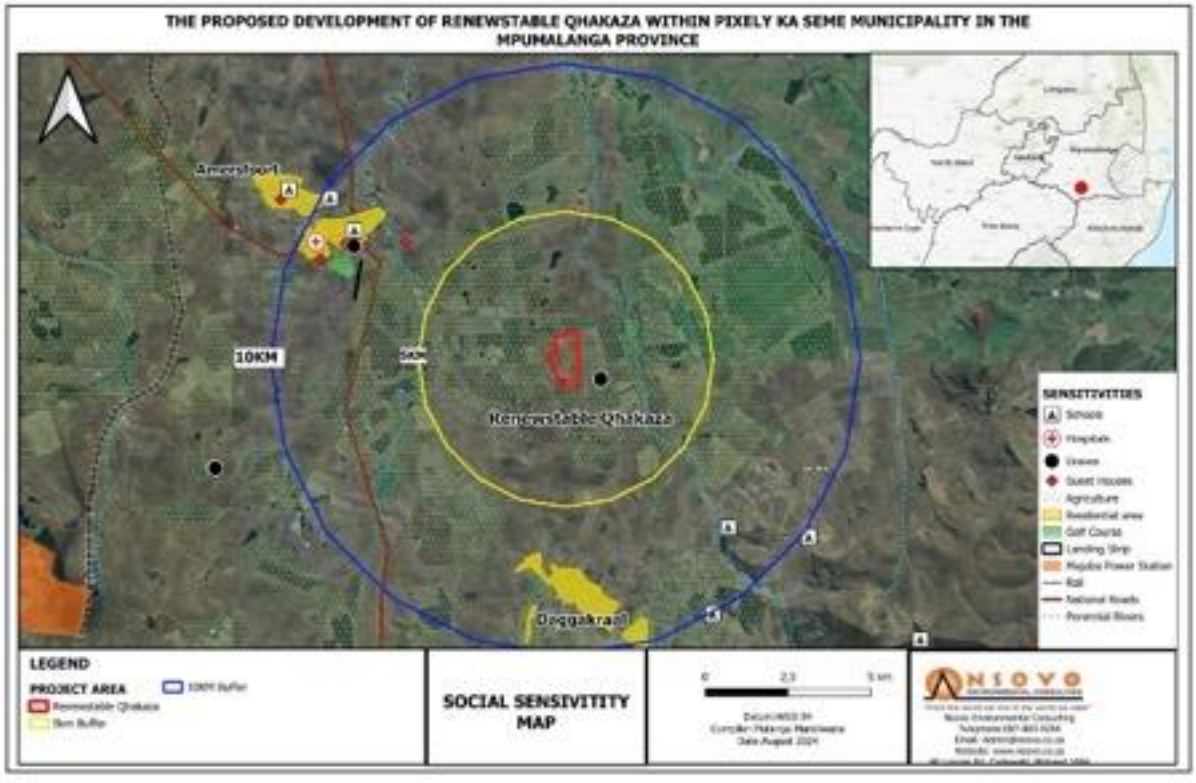
- Identified graveyards and any other cultural heritage to be carefully managed in consultation with relevant stakeholders, ensuring that the project does not irreparably damage them.

8.2 Risk Rating

Definition of significance rating

LEGEND		Definition
Very High Sensitivity		The identified issue is rated extremely sensitive to the negative impact on project development. As a result, the area will either have very high conservation value, very high existing/ potential socio-economic value or hold legal protection status.
High Sensitivity		The area is rated highly sensitive to the negative impact on project development. As a result, the area will either have high conservation value or existing/potential socio-economic value.
Medium Sensitivity		The area is rated as being of medium sensitivity to the negative impact on project development. As a result, the area will either have medium levels of conservation value and/or medium levels of existing/potential socio-economic value.
Low Sensitivity		The area is considered to have low sensitivity levels in the context of project Development.

8.2.1 Sensitivity Results – Renewstable Qhakaza



Constraints	5km	10km
Residential /hospitality		
Social Services – Schools and health care facility		
Agricultural Land		
Road		
Rail		
Graves		
Social Facility -Golf Course		

10. Conclusion

The Renewstable Qhakaza project will contribute to the region's energy development. It can drive significant socio-economic progress while advancing South Africa's shift toward renewable energy. The project aims to tackle critical challenges related to employment, clean energy access, and environmental sustainability through strategic planning and a solid commitment to engaging with local communities. By adopting targeted mitigation measures, including livelihood restoration programs, fair compensation, and support for vulnerable groups, the project will seek to minimise adverse impacts and maximise benefits for all stakeholders.

Renewstable Qhakaza is set to improve energy reliability, expand electricity access to underserved areas, and contribute to the broader economic growth of the Mpumalanga region. Focusing on long-term sustainability and inclusive development, the project will empower local communities, create new opportunities, and build a foundation for a cleaner, more resilient future. Ongoing monitoring, transparent communication, and inclusive decision-making will ensure the project's benefits are realised over time.

Additionally, continuous stakeholder engagement and consultation will be critical in incorporating diverse perspectives, addressing concerns, and ensuring that the project aligns with the needs and aspirations of the local communities.

The Social Impact Assessment report establishes a foundation for a comprehensive and responsible impact assessment process, guiding the project towards sustainable development that benefits both the environment and the communities involved. Ongoing collaboration with relevant stakeholders and adherence to best practices will be to integrate the Renewstable Qhakaza project into the local context successfully.

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