SOCIO-ECONOMIC IMPACT ASSESSMENT FOR THE WIND FARM (650MW FACILITY) ON A SITE NEAR AMERSFOORT AND ERMELO, MPUMALANGA PROVINCE

Socio-Economic Impact Assessment
Scoping Report - (650MW Wind Farm)
April 2023

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ABBREVIATIONS

WEF	Wind Energy Facility
NERSA	National Energy Regulator South Africa
JET	Just Energy Transition
EGI	Electrical Grid Infrastructure
MTS	Main Transmission Substation
LILO	Loop In Loop Out
PV	Photovoltaic
IISD	International Institute for Sustainable Development
TIPS	Trade & Industry Policy Strategies
MW	Mega Watt
IRP	Integrated Resource Plan
WGBI	World Government Bond Index
GDP	Gross Domestic Product
SACCI	South African Chamber of Commerce and Industry
BCI	Business Confidence Index
FDI	Foreign Direct Investment
GVA	Gross Value Added
CAGR	Compound Average Growth Rate
AOI	Area of Impact
EMPr	Environmental Management Programme

SPECIALIST DETAILS

Company Name:	**Urban-Econ Development Economists (Pty)Ltd**
Company Profile:	**URBAN-ECON** Development Economists (Pty) Ltd is a professional consultancy firm specialising in the field of development economics. Development economics, as advocated by URBAN-ECON, refers to the field of research where spatial principles are applied in an economic context. **URBAN-ECON** combines specialised skills, extensive experience, professional ethics and personal service delivery to provide appropriate and practical economically viable solutions. A personal approach in efficient service delivery ensures that project deliverables align with the clients' needs, therefore equipping the client with the necessary knowledge to make informed decisions.
Economic Assessment Practitioner Managing the Report	**Pierre van Jaarsveld** Cell: +27 82 828 9374 Email: pierre@urban-econ.com Position: Manager Qualification: B.TRP HONS (Town and Regional Planning) Experience: 15 Years Brief Profile: **Pierre van Jaarsveld** completed his B.TRP Town and Regional Planning degree at the University of Pretoria, South Africa. His expertise lies in property market analysis, economic impact assessment, feasibility analysis, project management, and project implementation. He built up valuable experience in Local Economic Development, agricultural development, enterprise development and impact modelling. He has managed projects for various property and economic studies, such as integrated housing projects and socio-economic impact assessments. He has also facilitated a number of urban and rural renewal and development projects focusing on job creation opportunities and broadening the local economic base through investment attraction in bankable projects. Pierre currently serves as manager of infrastructure projects as well as of Urban-Econ in Mpumalanga and is responsible for the day-to-day operations of the office.

1 INTRODUCTION

1.1 PROJECT DESCRIPTION

Urban-Econ Development Economist Pty (Ltd) has been appointed by SiVEST Environmental Division on behalf of the client ABO Wind renewable energies (Pty) Ltd, to provide specialist socio-economic impact assessment inputs to develop a renewable energy cluster, located south of Ermelo in the Mpumalanga Province.

The cluster is collectively referred to as "ABO Wind Ujekamanzi Wind Energy Facilities", consisting of 2 x Wind Energy Facilities (WEF's) and associated Electrical Grid Infrastructure (EGI): A Main Transmission Substation (MTS) and a Loop-In-Loop-Out (LILO) for the grid connection. There is a possibility of the inclusion of solar photovoltaic (PV) facilities, depending on the baseline "opportunities and constraints" findings. However, this is not included in the scope of work at this stage.

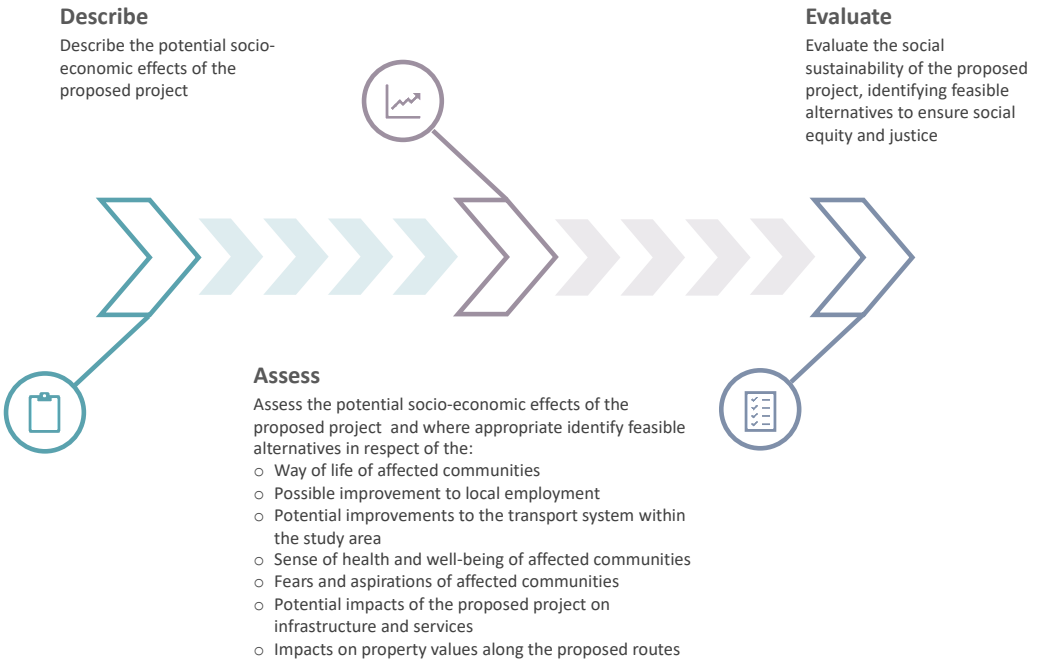
The project site comprises over 165 farms and farm portions, whereas three Solar PV developments with an approved Environmental Authorisation or applications under consideration falls within 30 km of the proposed area.

1.2 OVERALL PROJECT OBJECTIVE

The objective of this project is to undertake a Socio-Economic Impact Assessment (SEIA) for the Scoping and EIA phases for the Project. This report deals with the scoping phase of one of two Wind Farm facilities, with a capacity of 650MW.

Social-Economic Impact Assessment (SEIA) aims to assess any potential socio-economic impacts, either positive or negative, that may arise as a result of a proposed development. The socio-economic impacts will be analysed for the construction and operation phases of the proposed development. Additionally, mitigation measures to reduce the severity of negative impacts and measures to optimise the positive impacts will be included in the report.

Figure 1-1: Project Objective



1.3 SCOPE OF WORK

The scope of work for this assessment quote is in line with the NEMA protocols released in March 2020.

The Socio-Economic Impact Assessment will:

- Identify and assessment the socio-economic impacts associated with:
  - the construction phase,
  - the operational phase
  - if relevant, the decommissioning, abandonment or rehabilitation phase of the proposed project
- Provide a general overview of the baseline conditions associated with the affected community
- Identify and assess any potential socio-economic impacts, either positive or negative, that may arise because of the proposed project of individuals, household, agricultural related activities including forestry and commercial businesses
- To identify and assess the economic impacts of the proposed project during construction and its operation of the economic activities (gross value added, income generation and employment due to the implementation of the project
- Identify mitigation measures to reduce the severity of negative impacts and measures to optimise the positive impacts are to be included in the report

1.4 METHODOLOGY

The following sections outline the research methods that have been employed in the study.

1.4.1 Project description and study area delineation

This step involves the description of the proposed projects and delineation of the core study areas for basic social impact assessment.

1.4.2 Data collection

This step will involve collection of both primary and secondary data. The former will involve virtual and/or telephonic interviews with the local government authorities, local community representatives, and affected landowners. The latter will encompass the collection and review of relevant policies, local and provincial strategic documents, and statistics presented by Stats SA and Quantec.

1.4.3 Baseline profiling

This step will focus on a description of the study areas' socio-economic environment based on the data collected in the previous step. The baseline profile will be used to interpret the impacts and measure the extent of socio- economic impacts that could ensue from the establishment of the proposed development.

1.4.4 Identification and description of the anticipated impacts

This step will include the description of the potential socio-economic impacts that could be expected to ensue considering the development's components.

1.4.5 Quantification of OPEX and CAPEX

Economic impact modelling will be undertaken for both the construction and operational phase of the project in order to quantify all upstream and downstream impacts to the local and national economy through the application of economic multipliers developed for the Mpumalanga Province. This will allow for impacts to be forecasted through the various sectors of the economy and provide for the magnitude of the development from a GDP_R, Production, Job creation and tax perspective. In addition, the economic impacts of the proposed SED infrastructure spend will also be modelled.

1.4.6 Interpretation and evaluation

Once the impacts are identified, they will be interpreted in the context of the affected environments, i.e., baseline profiles, and evaluated. The impacts and extent thereof will be assessed and categorised in line with the rating provided by the environmental specialist.

1.5 SOURCE OF INFORMATION

The following information will be sourced from various sources to inform the study:

- From the client:
    - Start of construction and operations
    - Cost of development and operating expenses
    - Construction methodology
    - Number of people to be employed during construction and operations
    - Contact details of I&APs as well as surrounding landowners
    - Percentage of jobs to be allocated to the local communities
    - Types of skills required and to be filled by people from the local communities
    - Small business development programme during broth construction and operational phase
- From the site visit/interviews:
    - Socio-economic challenges experienced by the affected stakeholders
    - Need and desirability of the proposed developments
    - Concerns and issues related to the developments
    - Affected stakeholders' expectations
    - Alignment with the local government vision and objectives
    - Other projects planned for the area
- From secondary sources:
    - Previously completed studies and reports
    - Stats SA Census 2011 and Community Survey 2016
    - StatsSA Labour Force Survey
    - Quantec Research database
    - Integrated Development Plans (IDP)
    - Spatial Development Frameworks
    - Local Municipal and Provincial strategic documents where applicable.

1.6 ASSUMPTIONS, LIMITATIONS AND GAPS IN KNOWLEDGE

- The secondary data sources used to compile the socio-economic baseline (demographics, dynamics of the economy) although not exhaustive, can be viewed as being indicative of broad trends within the study area.
- The study was done with the information available to the specialist within the time frames and budget specified.
- Possible impacts and stakeholder responses to these impacts cannot be predicted with complete accuracy, even when circumstances are similar, and these predictions are based on research and years of experience, taking the specific set of circumstances into account.
- It is assumed that the motivation, and ensuing planning and feasibility studies for the project were done with integrity and that all information provided to the specialist by the project proponent and its consultants to date is accurate.

2 DESCRIPTION OF THE PROPOSED PROJECT

In this section a description of the proposed 650MW Wind Farm is provided. The site where the proposed project will be located and the activities that will take place on and off the site will be discussed.

2.1 SITE LOCATION

The project is located in the Pixley Ka Seme Local Municipality within the Gert Sibande District Municipality in Mpumalanga. Map 2-1 below indicates the locations of the proposed Project on a macro-level.

Map 2-1: Ujekamanzi Wind Energy Facility Location

Source: Google Earth, 2023

2.2 PROJECT DETAILS

The 650MW Wind Farm is proposed to contain the following infrastructure:

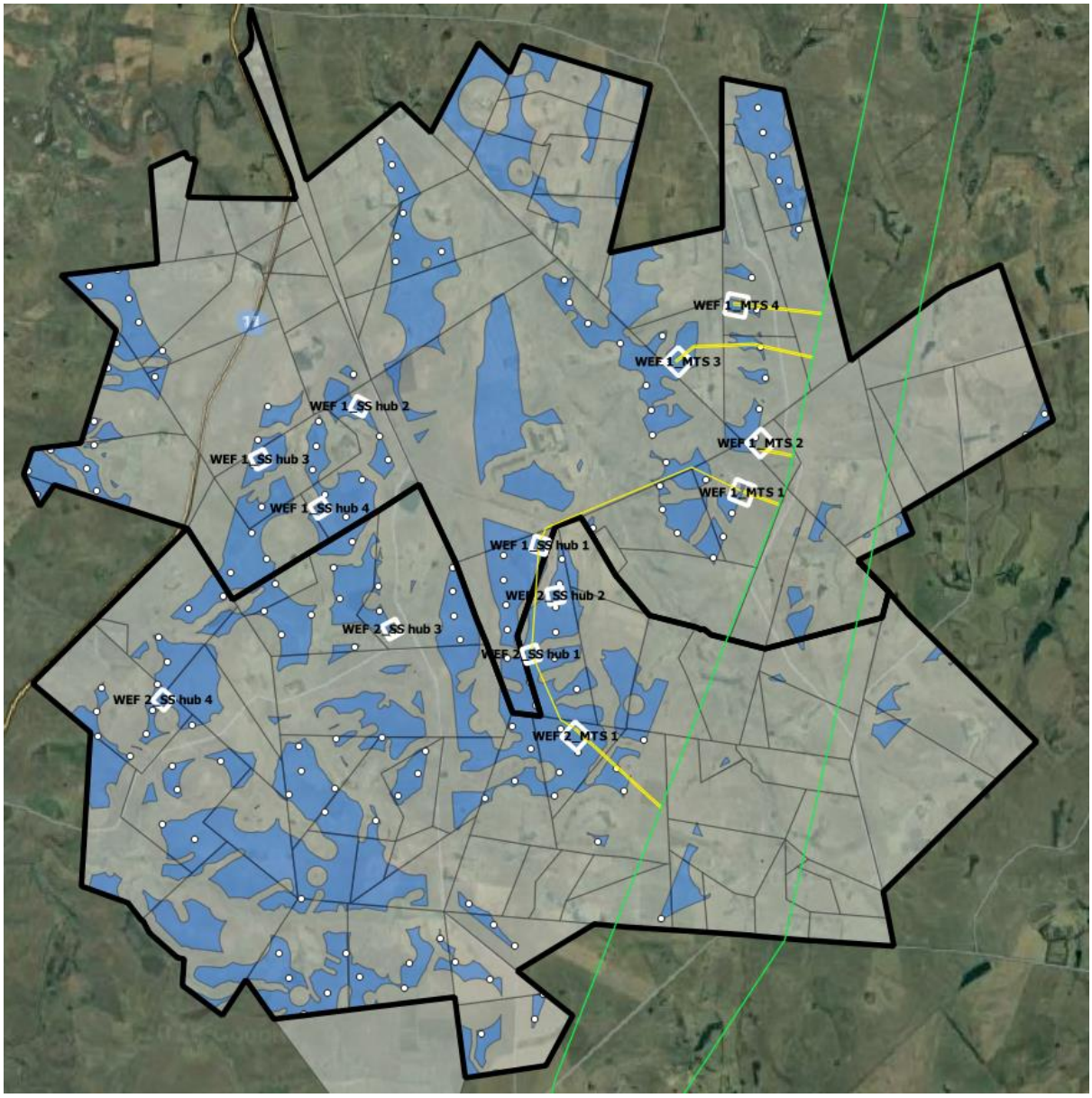
Table 2-1: Proposed Facility Infrastructure (Project Overview)

PROJECTS	DESCRIPTION
2 x Wind Energy Facilities	• Approximate combined capacity: 650 MWac • Approximate properties affected/ Site extent: 20,000 ha • Associated infrastructure include: • Wind Turbine Generators • Substation complex, O&M buildings (workshop etc.), • Battery energy storage systems of 500MW/500MWh, which could be either lithium-ion or redox flow technology, etc. • Underground cabling (33kV), Overhead powerlines (132kV), • Temporary site compound, Laydown areas, Access roads,

1 x Main Transmission Substation	The proposed development of a 400/132 kV MTS, including associated infrastructure at the MTS (potentially including 2 x 132kV OHL)
1 x Loop-In-Loop-Out grid connection	The proposed development of a 400 kV Loop-In-Loop-Out (LILO) from the existing 400 kV Overhead Power Line to the proposed MTS

The Map 2-2 below illustrates the proposed project site layout for the LILO's and OHL's (with alternatives, the proposed substation locations (with alternatives), the WEF 1 and 2 as well as the buildable areas (blue).

Map 2-2: Proposed Project Site Layout



2.3 Description of Planned Construction Activities and Methodology

The construction of each WEF would require the following activities:

- A survey of the site on which the proposed associated infrastructure will be constructed
- Site clearing and levelling (where required)
- Construction of access roads to the proposed site (where required)
- Construction foundations
- Assembly and installation of equipment
- Installation of internal reticulation lines
- Testing of equipment
- Rehabilitation of any disturbed areas and protection of erosion sensitive areas
- Continued maintenance

2.4 Needs and Desirability

South Africa is currently experiencing electricity supply challenges, which in turn is leading to periodic load shedding. The impact of load shedding has had massive effects on the economy and society at large. Furthermore, impacts of COVID-19, reduced business confidence and national sub-investment downgrades have all had impacts on the economy of the country. This section outlines the need and desirability of the proposed project based on the above-mentioned aspects.

2.4.1 South African electricity supply

South Africa's energy mix is largely focused on the use of non-renewable fossil fuels. The Department of Energy (DoE) notes that 83% of electricity production in South Africa is supplied by coal followed distantly by 6% pumped storage, 5% gas, 4% nuclear, 2% hydroelectric and 0,2% wind (National Department of Energy (DOE), 2021). It is noted by the DoE that renewables are the future of energy generation in South Africa especially as the costs of generating electricity through traditional means increases (National Department of Energy (DOE), 2021).

A critical variable published in the Electricity, gas and water supply industry statistical report is electricity production. According to the survey, South African electricity generation declined by 7,4% between 2019 and 2021. In fact, taking a quick look at the 2006 survey, the country produced less electricity in 2021 than it did in 2006. In 2022 extended periods of load shedding was experienced, with electricity generation down by 3,6% year-on-year for the period January to September 2022 (StatsSA, 2022). South Africa is also considered to be the world's 14th largest emitter of greenhouse gases (McSweeney & Timperley, 2018). The CO_2 emissions are principally due to a heavy reliance on coal to produce energy. South Africa has also pledged (through the Paris Accord) to reduce emissions and cap the amount of greenhouse gasses that would be emitted. This commitment was aligned to the national planning policy which promoted the utilisation of renewable resources to generate energy (McSweeney & Timperley, 2018).

Globally, renewables experienced another year of record growth in electricity capacity, regardless of aftershocks from the pandemic and an increase in global commodity prices that troubled renewable energy supply chains and postponed projects. The responsibility of renewables in improving energy security and sovereignty by replacing fossil fuels became central to discussions, as energy prices increased sharply in late 2021 and as the Russian Federation's invasion of Ukraine unfolded in early 2022. Investment in renewable power and fuels rose for the fourth consecutive year, reaching USD 366 billion, and a record increase in global electricity generation led to solar and wind power providing more than 10% of the world's electricity for the first time ever (REN21, 2022).

Global renewable power capacity grew to around 3 146 GW in 2022. Around 175 GW of solar photovoltaics (PV) was installed in 2021 – accounting for 56% of renewable capacity additions – followed by wind power (32%) and hydropower (9%). Overall, renewable energy has grown to account for 12,6% of the world's total final energy consumption in 2020 (REN21, 2022).

Additionally, the supply of electricity in South Africa is currently exceptionally constrained. Load shedding in South Africa began in 2007 as a result of insufficient electricity generating capacity by the government-owned national power utility, Eskom. The advent of load shedding has brought numerous direct economic impacts, indirect economic impacts and social impacts to South Africa. These are outlined in the table below:

Table 2-2: The consequences of power interruptions

Direct Economic Impacts	Indirect Economic Impacts	Social Impacts
Loss of business and manufacturing production	Cost of postponed income	Loss of leisure time
Restart costs	Loss of market share	Risks to health and safety
Equipment damage	Limitations to expansion and growth of production	
Raw material spoilage	Loss of competitive advantages	
Cost of backup systems	Loss of investor confidence	

Source: (Goldberg, 2015)

These costs are associated with losses to productivity and limitation of growth for companies and as a result limit the growth of the country (Goldberg, 2015). Load shedding thus threatens jobs, economic recovery, and the livelihood of many South Africans around the country.

Local research done through government agencies has also noted the need for change in the electricity industry. The National Energy Regulator of South Africa (NERSA), (National Electricity Industry Regulation: A different focus on the electricity supply industry challenges and possible solutions, 2020) has examined the electricity supply industry challenges and possible solutions for those challenges and has maintained that continued price increases for electricity is unsustainable as it reduces demand. The increase in electricity prices has led to an increase in export of un-beneficiated ore which is likely to increase as the electricity price increases (NERSA, 2020).

It has also been noted that there has been a reduction in export volumes of minerals which is likely a result of the increased price of electricity and unstable electricity supply. It has also been noted that the negative trend in exports mimic the Gross Domestic Product (GDP) growth trends, which seems to be inversely proportional to electricity prices (NERSA, 2020). NERSA has also noted that electricity price is a significant cost driver for some sectors. The increase in electricity cost has a greater impact on some sectors such as the metals, steel and mining industry and less of an impact on other industries such as the transport industry. New energy trends have also been noted by NERSA (NERSA, 2020).

Their position is that the obligation to supply the majority of domestic, commercial, and small industries energy (day load) should be removed from Eskom and be supplied by renewable energy IPP sources (NERSA, 2020). It can thus be assumed, that at a national level any additional energy production which is sustainable, and renewable would improve energy security, further South Africa's goals towards international agreements, provide employment and assist in improving investor confidence in the country.

2.4.2 Just Energy Transition (JET)

According to International Institute for Sustainable Development (IISD), (Strategies for just energy transitions, 2018), energy transitions are shifts in the way people produce and consume energy using different technologies and sources. A low-carbon energy transition is a type of energy transition involving a shift from high-carbon energy sources such as oil, gas and coal to low-carbon and zero-carbon energy sources such as renewables.

A just energy transition is a negotiated vision and process centred on dialogue, supported by a set of guiding principles, to shift practices in energy production and consumption. It aims to minimize negative impacts on workers and communities with stakes in high-carbon sectors that will wind down, and to maximize positive opportunities for new decent jobs in the low-carbon growth sectors of the future. It strives to ensure that the costs and benefits of the transition are equitably shared.

Acting sooner rather than later can make energy transitions less expensive and more equitable, while also providing new opportunities for countries to build low-carbon industries. Nonetheless, overcoming "carbon lock-in" is difficult, and targeted political and media efforts are required to speed up just energy transitions. Much may be done to help these processes, which are either underway or in the early stages in many nations. Based on case studies and research, the table below lists concrete steps that governments can take to begin or accelerate a just energy transition (IISD, 2018).

Table 2-3: Implementation Steps for JET

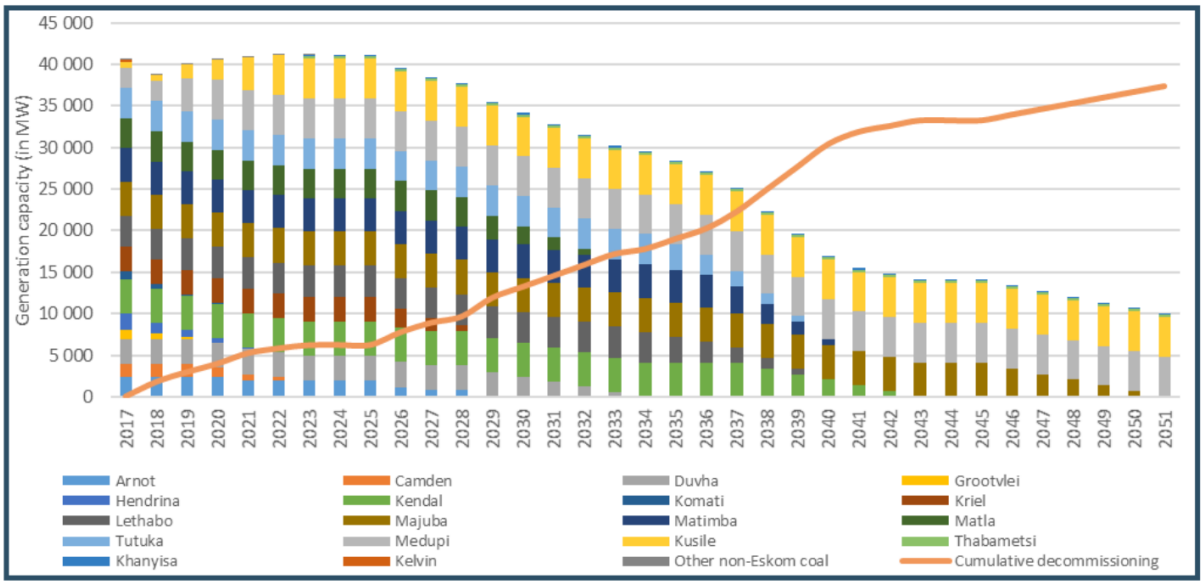
Understanding the context	• Map the political economy of an energy transition • Use detailed analyses of positive and negative impacts of an energy transition (at national, regional or even plant level)
Identifying champions	• Facilitate international and regional exchange and peer learning between countries at different stages of energy transition processes, including engagement with labour, businesses, civil society, especially for developing country contexts • Round tables at the country level to start or enhance a conversation on a just transition between all concerned stakeholders • High-level dialogue between countries in similar situations to promote the idea of a just transition at the highest levels of government (e.g., at the EU, OECD or G20 level or bilaterally)
Making the case	• Develop communications strategies for just energy transitions • Set up inclusive processes for "two-way communications" • Train government officials in communications
Implementing just transition measures	• Promote localized green jobs, including in decentralized energy and energy efficiency, and link this explicitly to the energy transition • Mobilize additional funding to promote visible and tangible just transition measures, and communicate about the benefits • Share best practices of just transition measures

Source: (International Institute for Sustainable Development, 2018)

According to Trade & Industry Policy Strategies (TIPS) (Making sense of jobs in South Africa's just energy transition: Managing the impact of a coal transition on employment, 2021), South Africa's just transition plan is both essential and conspicuously absent as the reality of a coal transition and coal power decommissioning approaches. The need to manage the transition's effects on employees and local economic development, particularly in coal-dependent regions and communities, is urgent. It is necessary to have a credible fact base from which to make suitable and widely supported decisions.

Several specific political consensuses must be brokered in this conceptual clearing in order to enable policy creation and execution, as well as investment, for a green and just transition.

Figure 2-1: South Africa's coal-based generation capacity and scheduled decommissioning



Source: (Trade & Industry Policy Strategies, 2021)

According to JET IS (2022), the coal plant decommissioning will need R4,1 billion between 2023 and 2027. Coal plant-decommissioning costs reflect what Eskom has currently provided for in its planning. These costs exclude the costs of repurposing or repowering retired plants and other infrastructure investments.

As per the JET IS (2022), the infrastructure investment priorities are:

- To manage the decommissioning of the retiring coal generation fleet, in line with a revised Integrated Resource Plan (IRP), and in tandem with the development of renewable energy generation at scale and pace
- To timeously strengthen the transmission grid infrastructure to accommodate the shift to renewable energy
- To modernise the electricity distribution system

2.4.3 National sub-investment downgrades

On March 27th, 2020 Moody's Investor Service (Moody's) downgraded South Africa's long-term foreign-currency and local-currency issuer ratings to Ba1 from Baa3 (Junk Status). Moody's is the third and last of the major credit rating agencies to downgrade South Africa to junk status after Standard & Poor's and Fitch's both downgraded South Africa in 2017 (Duvenage, 2020).

While these sub-investment ratings are worrying for the country, it is difficult to understand and predict what will happen to the currency in the short and medium term and currency fluctuations may occur. This is largely as a result of global dynamics that are currently in play, in particular the appetite for safe haven assets which is a far more powerful force than any of the local challenges that are emerging (Duvenage, 2020).

One of the known impacts of the downgrade was that South Africa fell out of the World Government Bond Index (WGBI) and other popular bond indexes, an index that measures the performance of fixed-rate, local currency, investment-grade sovereign bonds. The sub-investment rating means that South Africa has dropped out of some of the widely used global bond indexes and forced international funds which track these indexes to sell South African bonds. It is estimated that between $22-$28 billion in capital has already flowed out of local markets since 2018 with the recent downgrade account for between $1,5 and $8 billion (Duvenage, 2020).

This will likely result in a rise in government debt-servicing costs which could bring strain to the already frail economic system with revenue shortfalls and contraction in GDP (Duvenage, 2020). Furthermore, on the 29th of April 2020, Standard & Poors Global Ratings further downgraded South Africa's sovereign credit rating into non-investment grade citing the impact of COVID-19 on South Africa's public finances and economic growth as one of the reasons for its ratings action (Swart & Goncalves, 2020).

The downgrade casts further doubt over South Africa's ability to recover post COVID-19. Some other impacts expected from the downgrade, include the deterioration of South Africa's credit reputation, less access to conventional credit markets; deterioration in consumer and business confidence leading to a potential contraction in private investment and consumption demand; South Africa losing its status in various bond indices whereby some bond investors with mandate limitations are prohibited from buying the country's bonds; and a large forex outflow as foreign investors dump South African debt (Swart & Goncalves, 2020).

In terms of direct impacts on the construction of the proposed project, is that of currency fluctuations. With an unstable local currency, there may be unexpected and unplanned costs involved when importing technology for the project. The development and utilisation of local supply chains could go a long way in minimising the risks associated with currency fluctuations.

2.4.4 Assessment of business confidence levels in South Africa

The South African Chamber of Commerce and Industry (SACCI) Business Confidence Index (BCI) increased by 0.3 index points from an average of 108.5 index points in 2021 to 108.8 index points in January 2022. This was followed by an increase in BCI to 112.0 in February 2022. However, the average of 108.6 for the 1st half of 2022 was nevertheless 1.5 index points higher than the average for the 2nd half of 2021. It appears that the July 2022 BCI number indicates that, the business climate is gradually returning to normality.

Increased merchandise export and import volumes, and more new vehicles sold made positive contributions to the business climate in the short-term (month-to-month) in July 2022. Higher inflation, a weaker and volatile rand exchange rate, and higher real interest rates weighed negatively on the business environment. The terms of trade remained negative while electricity supply had an adverse bearing on doing business. The decline in share prices on the JSE in July maintained negative perceptions on South Africa (SACCI, 2022).

The following indicators should be taken into consideration when analysing the business environment as they negatively contributed to the BCI:

- Energy Supply
- Manufacturing
- Exports
- Retail Sales
- Construction – buildings
- Inflation
- Share Prices
- Real financing cost
- Precious metal prices
- Rand exchange rate

However, there were positive contributors to the BCI, including:

- Tourism inwards
- Imports
- Vehicle sales
- Real private sector borrowing

The further development of renewable energy would likely lead to improved supply of electricity for the development of the economy. This is likely to improve business confidence in the country as sustainable energy supply is one of the key concerns of business moving forward. International investors have also noted, with concern, that the lack of availability of a consistent energy system does not lend itself to growth of Foreign Direct Investment (FDI) (Santander, 2020). The development of renewable energy systems is seen by local and foreign business owners as the future of energy generation and may increase business confidence both locally and internationally (Kovaleski, 2019).

3 POLICY REVIEW AND PROJECT ALIGNMENT

This chapter examines the key legislation and polices relevant to the proposed development and includes a review of pertinent national, provincial and local polices that have a direct bearing on the development. Following this the chapter outlines the needs and desirability of such a development accordingly.

3.1 POLICY AND PLANNING ENVIRONMENT

The overall aim of this review process is to provide insight into the government's priorities and plans in terms of renewable energies. This assists in determining the relevance of the project with regard to the development objectives of the various spheres of government as well as in identifying potential developmental conflicts that the project might create. A brief review of the most relevant documents is provided in Table 3-1.

Table 3-1: Brief Overview of relevant policies

Policy	Key Policy Objectives	Source
National Policy: South Africa		
National Development Plan 2030	• Creating jobs and livelihoods • Expanding infrastructure • Transitioning to a low-carbon economy • Transforming urban and rural spaces • Improving education and training • Providing quality health care • Building a capable state • Transforming society and uniting the nation • Fighting corruption and enhancing accountability	(NPC, 2012)
New Growth Path Framework 2011	• Infrastructure investment • Main economic sectors as employment sectors • Seizing the potential of new economies • Investing in social capital and public services • Fostering rural development and regional integration	(South African Government, 2011)
Renewable Energy Vision 2030 South Africa	• Renewable energy as an exceptional source of flexible supply within the context of uncertain energy demand • Comprehensive renewable energy base will support a resilient South African future • A sustainable energy mix that excludes undue risks for the environment of society	(World Wildlife Fund, 2014)
Integrated Resource Plan 2019	• The IRP (2019) has indicated that South Africa should continue to track a diversified energy mix which lessens reliance on a few primary energy sources. • The IRP document expects a total of 9 980 MW of additional wind capacity to be introduced in South Africa by 2030. The wind Independent Power Producers (IPPs) constitute the largest single renewables technology procured to date under the Renewable Energy Independent Power Producer Procurement Programme. • Allocations to safeguard the development of wind energy projects aligned with the Integrated	(Department of Energy, 2019)

Policy	Key Policy Objectives	Source
	Resource Plan (IRP) 2010 should continue to be pursued: o Ensure energy security and supply o Reduce environmental impacts o Endorse job creation and localisation o Lessen cost of energy o Reduce water consumption o Diversify supply sources o Promote energy efficiency o Promote energy access Additionally, the IRP (2019) indicates that: • Wind energy will be 22.5% of the energy mix compared to solar at 11% by 2030	
The Constitution of South Africa 1996	• "Everyone has the right to an environment that is not harmful to their health or well-being" (S24) • The environment should be protected for the benefit of present and future generations, through reasonable legislative and other measures that: • Prevent pollution and ecological degradation • Promote conservation • Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development	(Republic of South Africa, 1996)
White Paper on Energy Policy of the Republic of South Africa 1998	• Seeks to ensure that an equitable level of national resources is invested in renewable technologies, given their potential and compared to investments in other energy supply options • Aims to create energy security by diversifying the energy supply and energy carriers	(Department of Minerals and Energy, 1998)
White Paper on the Renewable Energy Policy of RSA 2003	• Pledges government support for the development, demonstration and implementation of renewable energy sources for both small and large-scale applications	(Department of Minerals and Energy, 2003)
Provincial Policy: Mpumalanga		
Mpumalanga Economic Growth & Development Path	• Highlights the current economic landscape of Mpumalanga with a view of the future growth and development of the province. The MEGDP identifies the following key sectors: • Infrastructure • Mining • Green Economy • Manufacturing • Agriculture • Tourism • The MEGDP focus on the production of technologies for solar, wind and biofuels and is also supported by the Energy on Integrated Resource Plan	(Mpumalanga Economic Growth & Development Path, 2011)
Mpumalanga Draft Green Economy Sector Plan, 2016	• The Plan aims to provide an integrated approach towards developing the green economy in Mpumalanga by 2030 in line with the Vision 2030. Specific objectives include: o Developing a sector plan based on the province's strengths in natural resources endowments	(DNA Economics, 2016)

Policy	Key Policy Objectives	Source
	○ Expanding on the economic, green and environmental initiatives that are already underway in the province in order to facilitate quick wins ○ Support the DEDT's drive in sustainable economic development – Develop an action plan for implementation	
Mpumalanga Tourism and Parks Agency Strategic Plan, 2011	• The strategic plan emphasises that Mpumalanga possesses significant potential to capture large numbers of international and domestic tourists. In particular, the Kruger National Park, several other reserves, natural and cultural and historical heritage are attractions that are in demand by all tourist groups. • The plan states that the environmental sector often puts much emphasis on biodiversity conservation without necessarily linking it with eco-tourism. The plan states that much naivety has been observed about what ecotourism can do. The plan calls for improved implementation of policy that will see biodiversity promotion being embraced by the broader tourism industry and the need for improved awareness from players within the sector to reduce the adverse environmental impacts of tourism.	(Mpumalanga Tourism and Park Agency, 2011)
Mpumalanga Nature Conservation Act No. 10 of 1998	• This Act ensures that the government of the Province of Mpumalanga shall manage the environment in such a way that the basic right of every citizen can be realised. The Act seeks to ensure that an adverse impact on the environment is limited and that the rights of all that live in the province with regard to the environment are protected. • Applicable clauses within the bill in the context of this study include: ○ Provides for the transfer of hunting and other rights of a holder of a certificate of adequate enclosure. ○ Provides for the MEC's general powers in respect of wild animals. ○ Details restricted activities involving provincially protected and endangered species. ○ Stipulates obligations of holders of certificates of adequate enclosure. ○ Details permit requirements of persons and businesses operating game parks etc.	(Mpumalanga Nature Conservation Act 10 of 1998, 1999)
District & Local Municipal Policy: Gert Sibande DM & Dr Pixley Ka Seme LM's		
Gert Sibande District Municipality IDP 2021	• The Gert Sibande District IDP acknowledges green economy development as a primary objective as per the MEGDP. The IDP further states that investment in research for new technologies will be prioritised.	(Gert Sibande District Municipality, 2021)

Policy	Key Policy Objectives	Source
	• The IDP identifies the need in enhancing green economy to improve service delivery in all its seven local municipalities. • Interventions to facilitate growth and job creation in the manufacturing sector includes: o Supporting the development of clean forms of energy like wind and hydro power generations opportunities • The IDP indicated the following issues/strategic objectives i.t.o electricity supply: o Eradication of the remaining backlogs o Create capacity to accommodate new developments	
Pixley Ka Seme Local Municipality, SDF 2020	• The LMs SDF agrees with the NDP 2030, which states: o The upgrading of renewable energy is one of several of the prioritised investments. o	(Dr Pixley Ka Isaka Seme Local Municiaplity, 2020)

The review of the policy environment suggests that utilisation, application and investment in renewable energy sources in South Africa is considered to be an integral means of reducing the carbon footprint of the country, diversifying the national economy, reducing poverty and creating much-needed additional sources of energy. Any project contributing to the above-mentioned objectives can therefore be considered strategically important to South Africa.

From a provincial and municipal policy perspective the facilitation of renewable energy projects and interventions that relate to the broader green economy are seen as a priority in terms of the policies and strategies developed.

4 SOCIO-ECONOMIC PROFILE OF THE STUDY AREA

This section documents various aspects of the primary study area including, population and household numbers, income levels and employment. In addition, the chapter also reviews the economic structure and performance of the study area. The intention of this review is to provide an overview of the socio-economic context of the area so as to better understand the dynamics of the area and to inform the SEIA process. The Mpumalanga Province has been identified, as well as Pixley Ka Seme local municipality that falls within the Gert Sibande district.

4.1 POPULATION, INCOME AND EMPLOYMENT PROFILE

The Pixley Ka Seme Local Municipality falls within the Gert Sibande District Municipality, whereas Govan Mbeki account for 28% of the population, and 30% of the households in the district and Lekwa 12% of the population as well as households in the district. The Msukaligwa LM accounts for 14% of the population and 15% of the Households in the DM.

Population growth between 2011 and 2021 was 1,5% year-on-year for the local municipality, which compared lower than the district municipality (1,9%) and similar to Mpumalanga (1,5%) over the same period. The average population growth in the local municipality indicates that the municipality offers limited opportunities, attracting less people towards the area, this can also be motivated by the low population density (20 km^2) in comparison to the other areas as well as the lower average monthly household income, which is the lowest (R4 994,00) of all the areas in review.

Table 4-1: Overview of the primary study areas population structure

Indicator	Mpumalanga	Gert Sibande District Municipality	Pixley Ka Seme Local Municipality
Area (km^2)	76 495	31 840	5 227
Population	4 841 308	1 301 767	102 327
Number of Households	1 293 315	341 811	24 287
Population density (km^2)	63	41	20
Average household size	3,7	3,8	4,2
Annual population growth (2011-2021)	1,5%	1,9%	1,5%
Average monthly household income	**R6 671**	**R6 933**	**R4 994**

Source: Quantec Standardised Regional (2023); Stats SA (2011) forecast to 2023

The average household income for the Gert Sibande District Municipality in 2023 is estimated to be R6 933.00. The proposed project will also attract additional population to the study area as several employment opportunities will be created through the development, this will also ensure a sustainable population growth.

Table 4-2: Employment profile of the study areas

Indicator	Mpumalanga	Gert Sibande District Municipality	Pixley Ka Seme Local Municipality
Employed	1 051 844	286 920	14 702
Unemployment Rate	37,3%	36,5%	44,3%
Not Economically Active	1 395 317	374 105	33 410
Labour force participation rate	34,2%	34,7%	24,6%

Source: Quantec Standardised Regional (2023)

Table 4-2 indicates the number of people employed and not economically active, the percentage of the population unemployed as well as the labour force participation rate for areas in review. The relatively higher unemployment rate and lower labour force participation relative to the district averages further suggests that the local municipality is subject to outward migration due to the limited employment opportunities available within the local municipality.

4.2 ECONOMIC PROFILE

The following subsection outlines the economic profile at a national as well as a provincial, district municipal and local municipal level. After contracting by 0,7% in the second quarter of 2022, the South Africa's Gross Domestic Product (GDP) rallied in the third quarter, expanding by 1,6% (StatsSA, 2022). However, after plummeting in the second quarter of 2020 – when lockdown restrictions were at their most stringent – South African GDP clawed itself back to pre-pandemic levels in the first quarter of 2022. (StatsSA, 2022).

4.2.1 Regional economic profile

The GVA (Gross Value Added) of the local municipality was R5,95 billion in 2021 (constant prices), which collectively accounts for just over 2,8% of the district economy's GVA, and 0,9% of the Mpumalanga's. The proposed project will contribute further to the economy and ensure sustainability.

Table 4-3: Economic structure between 2011 and 2021 (constant 2015 prices; R' millions)

Sector	Mpumalanga		Gert Sibande District Municipality		Pixley Ka Seme Local Municipality	
	2011	2021	2011	2021	2011	2021
Agriculture and hunting	3,80%	6,58%	3,97%	6,84%	8,89%	17,16%
Mining and quarrying	19,35%	21,03%	17,35%	17,22%	2,35%	3,34%
Manufacturing	28,85%	23,77%	41,60%	37,35%	15,34%	12,61%
Electricity, gas and water	6,09%	5,71%	4,17%	3,70%	16,84%	5,65%
Construction	4,19%	3,04%	3,26%	2,59%	6,96%	5,64%
Trade	10,28%	9,86%	9,04%	9,36%	14,71%	16,17%
Transport and communication	5,78%	4,65%	4,43%	3,64%	8,17%	7,06%
Finance and business services	10,49%	12,82%	7,87%	9,91%	9,11%	12,19%
Community services	4,14%	4,87%	3,07%	3,59%	6,30%	7,02%
General government	7,04%	7,67%	5,24%	5,81%	11,33%	13,15%
TOTAL GVA	**R628 607**	**R679 310**	**R201 623**	**R212 014**	**R6 189**	**R5 958**

Source: Quantec Standardised Regional (2023)

The growth in the local municipalities over the last few years was largely due to the strong performance of the agriculture, mining and finance business services sectors. Manufacturing indicated a contraction in the last 10-years in the local municipality but remains a large contributor in the economy. Many of these are linked to the agro-processing sector that is present in the town of Ermelo. Electricity was a large contributor in 2011, but realised a severe contraction, contributing only 5,65% in 2021, from 16,84% in 2011. The new development would likely increase the contribution of the utilities and construction sectors to the GVA.

Table 4-4: GVA per sector for the Pixley Ka Seme Local Municipality (2015 constant prices; in R' millions)

Sector	Pixley Ka Seme Local Municipality		
	2011	2021	CAGR
Agriculture and hunting	R550,44	R1 022,31	6,39%
Mining and quarrying	R145,31	R198,86	3,19%
Manufacturing	R949,40	R751,10	-2,32%
Electricity, gas and water	R1 042,28	R336,35	-10,69%
Construction	R430,86	R336,24	-2,45%
Trade	R910,66	R963,58	0,57%
Transport and communication	R505,60	R420,90	-1,82%
Finance and business services	R563,94	R726,45	2,56%
Community services	R389,61	R418,39	0,72%
General government	R701,05	R783,71	1,12%
TOTAL GVA	**R6 189,1**	**R5 957,9**	**-0,38%**

Source: Quantec Standardised Regional (2023)

Over the last ten years, the Compound Average Growth Rate (CAGR) of the local municipality contracted with 0,38%, this can be aligned to the economic downturn experienced between 2020 and 2021 due to the covid-19 pandemic. The sectors responsible for the contraction of the overall GVA a growth over the 10-year period was manufacturing, transport, electricity, gas and water and construction.

As evident by Table 4-5 the general government sector contributes the most towards employment on all levels from provincial to local. The utilities sector employs the least to employment, the proposed project will increase the number of employees in this sector.

Table 4-5: Employment structure and contribution between 2011 and 2021 per economic sector

Sector	Mpumalanga		Gert Sibande District Municipality		Pixley Ka Seme Local Municipality	
	2011	**2021**	**2011**	**2021**	**2011**	**2021**
Agriculture and hunting	10,7%	11,7%	13,2%	14,2%	15,1%	16,7%
Mining and quarrying	9,7%	9,9%	11,5%	11,1%	0,8%	0,9%
Manufacturing	9,2%	8,0%	10,3%	8,7%	6,3%	5,2%
Electricity, gas, and water	1,1%	1,0%	1,0%	0,8%	1,9%	0,6%
Construction	6,6%	6,5%	5,3%	6,0%	6,6%	7,3%
Trade	21,2%	19,1%	20,7%	19,5%	22,6%	20,7%
Transport and communication	3,9%	3,4%	3,5%	3,1%	3,8%	3,4%
Finance and business services	11,1%	11,9%	9,7%	10,8%	9,9%	10,7%
Community services	5,4%	5,7%	4,9%	5,1%	5,9%	5,8%
General government	21,1%	22,9%	19,8%	20,7%	27,1%	28,8%
TOTAL EMPLOYMENT	**1 025 618**	**1 051 844**	**277 669**	**286 920**	**14 957**	**14 702**

Source: Quantec Standardised Regional (2023)

The agricultural sector employs a large number of people across the province, district and local municipality. In general, agricultural activities are relatively labour intensive, thus a small decline in the size of the sector would generally lead to greater job losses than for example in manufacturing or utilities, which tend to be more capital intensive in nature. The agricultural sector is also frequently one of the largest employers in rural areas and it is for these two reasons that the sector is generally prioritised in development strategies.

5 THE AREA OF IMPACT

5.1 INTRODUCTION

In this section a description of the area that will be impacted on is provided. The geographic area (referred to hereafter as the Area of Impact/Influence - AOI) for which the socio-economic baseline is developed assumes that the people, communities and businesses immediately surrounding the projects are likely to experience the greatest socio-economic impacts as a result of the construction and operation of the proposed project.

The socio-economic AOI is determined based on the following:

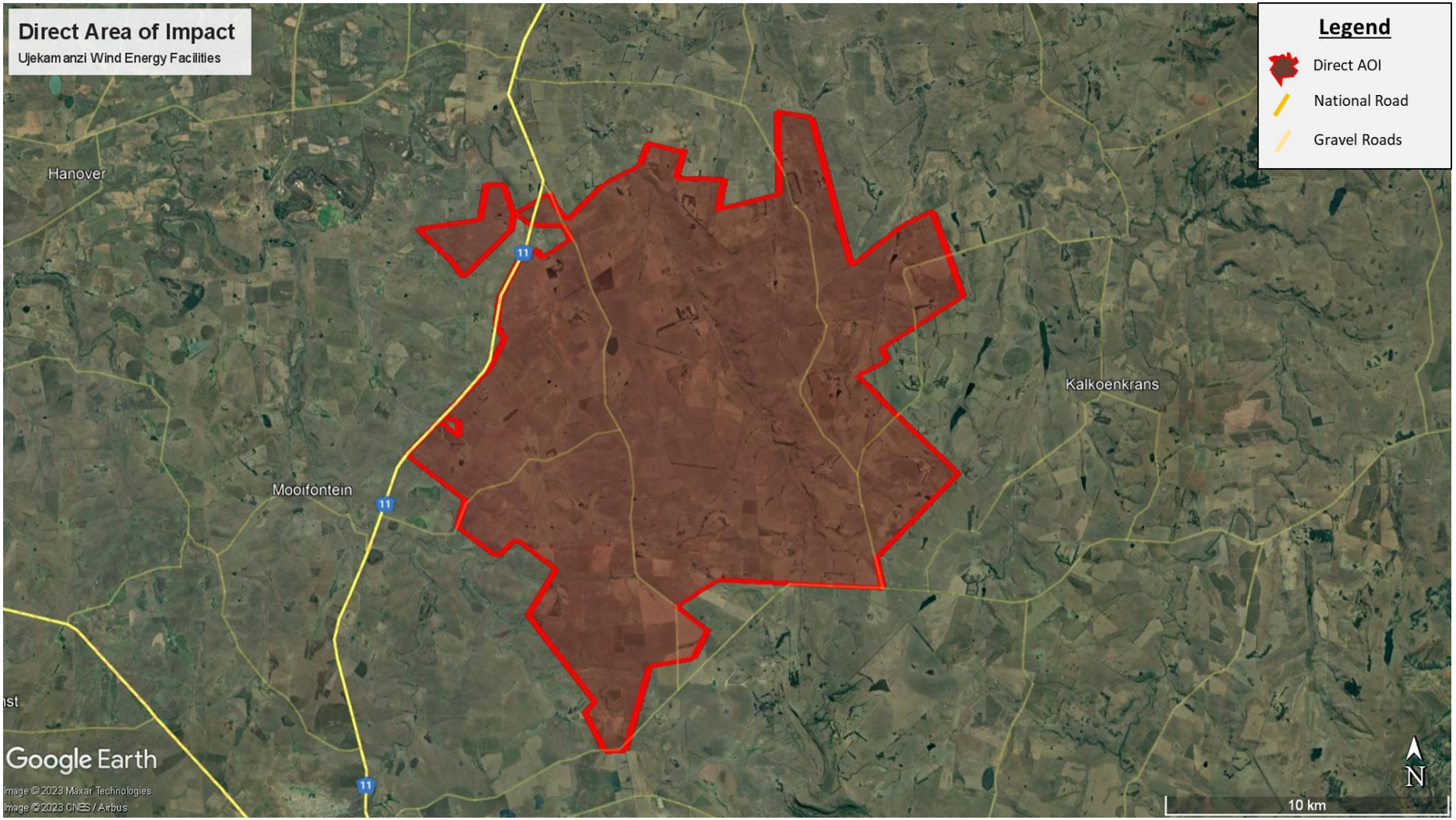
- Assessment of the area of impact based on the construction and operation activities on the sites.
- The nature of the activities such as the operation of heavy machines and equipment described in the preceding section, heavy vehicles and trucks moving to and from the site.
- Distances of communities and people living from the site and areas where the activities including the transport activities will take place.
- The likely impact of air quality, visual and noise generated on the site and along the transport routes. Note that separate air, noise and visual specialist reports are prepared that deals with these impacts in more detail.

5.2 DIRECT AREA OF IMPACT

The direct or immediate socio-economic Area of Impact (AOI) of the proposed 650MW Wind Farm is indicated in Map 5-1 by the red line. At this stage of the project, the direct AOI is seen as the total site and the roads giving access to the site this will be adjusted as the detailed layout plans are made available.

The majority of the direct AOI covers agricultural lands with residential farmhouses and associated agricultural infrastructure. The site overlaps a marginal portion of the N11 road on the north-western part and includes several gravel roads giving access to the various landowners.

Map 5-1: AOI and Zone of Influence



6 IMPACT ANALYSIS

6.1 INTRODUCTION

The Interorganizational Committee on Guidelines and Principles for Social Impact Assessment (1998) defines social impacts as:

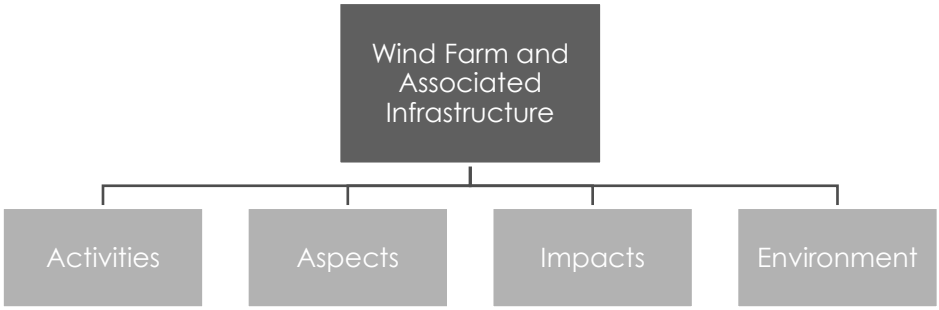
> *"The consequences to human populations of any public or private actions that alter the ways in which people live, work, play, relate to one another, organise to meet their needs and generally cope as members of society. The term includes cultural impacts involving changes to the norms, values and beliefs that guide and rationalize their cognition of themselves and their society."*

6.2 SOCIAL AND SOCIO-ECONOMIC IMPACTS

Socio-Economic Impact Assessments (SEIA) are instruments intended to identify and where possible quantify both economic and socio-economic impacts. Typically, socio-economic impacts are assessed from the perspective of the specific local people, households, community, business and other land-uses in the environment.

The process of identifying potential impacts is illustrated in **Error! Reference source not found.**.

Figure 6-1: Process of Identifying Potential Impacts



6.3 ECONOMIC IMPACTS

Typically, economic impacts are assessed from the perspective of the national and regional economy within which the proposed development is to be implemented. Economic impacts can be defined as the effects (positive or negative) on the level of economic activity in a given area(s). The net economic impact is usually measured as the expansion or contraction of an area's economy, resulting from the changes in (i.e., opening, closing, expansion or contraction of a facility, project or programme.

All new projects have two basic types of investments, namely an initial capital injection/expenditure which can take the form of either a greenfield development (i.e., new construction project on vacant land) or brownfield development (i.e., a modification of an existing structure and there is an annual investment made to maintain/operate the investment).

The economic impacts created by a capital injection are once-off impacts that will occur for the duration of construction. Thus, economic impacts associated with the construction phase are not sustainable economic impacts. Operational economic impacts, unlike capital expenditure economic impacts, are sustainable and thus are calculated as an annual impact based on operational expenditure for a given year.

Hence the temporal nature of capital expenditure and long-term nature of operational expenditure impacts cannot be added together to determine the total economic impact. The net economic impact of an exogenous change in the economy will be translated according to various direct and indirect economic effects, as outlined below:

Direct economic impacts: The changes in local business activity as a direct consequence of public or private activity in the economy. Furthermore, increased user benefits lead to monetary benefits for some users and non-users within the geographical area:

- For affected residents, benefits may include reduced costs for obtaining goods and services, increased income from selling goods and services to outsiders, and/or increased variety of work and recreational opportunities associated with greater location accessibility. For affected businesses, there may be economic efficiency benefits in terms of product cost, product quality or product availability, stemming from changes in labour market access, cost of obtaining production inputs and/or cost of supplying finished products to customers.

Indirect and induced impacts: The direct benefits to business and the residents of communities and regions may also have broader indirect/induced impacts:

- Indirect – Growth of municipal revenues due to raised taxes and service levies.
- Induced – Business growth as the additional workers (created by direct and indirect economic impacts/effects) spend their income on food, clothing, shelter and other local goods and services.

Economic impacts refer to the impact that the construction, operational and maintenance phases of the proposed development will have on the economy, as measured by the following economic indicators:

- **Contribution to Regional GDP:** Regional GDP is a broader measure of the full income effect. This measure reflects the sum of wage income and corporate profit generated in the study area due to an exogenous change in the regional economy.
- **Employment Creation:** The employment resulting from the construction, operation and maintenance of the project under investigation. The skill level of employment created is also considered.
- **Production/Business Sales:** The value of all inter- and intra-sectoral business sales generated in the economy because of the introduction of an exogenous change in the economy. Explained more simply, new business sales equate to additional business turnover as a result of the introduction of an exogenous change in the economy (e.g., the construction of a powerline and substation).
- **Personal Income:** Refers to the salaries and wages earned as a result of the employment generated from the development of the proposed project.

6.3.1 Economic Impact Assumptions

This sub-section of the report describes the assumptions used in the socio-economic impact assessment study and specifically in the economic modelling exercise which aims to quantify the economic impact of the project. The assumptions presented in this section refer to construction, operation, and decommissioning assumptions applicable to the project as provided by SiVEST Environmental.

6.3.1.1 Construction phase assumptions

The following assumptions regarding the construction phase of the Project is made:

- Construction is expected to be up to 24 months
- The project sizes will depend on the project extent after considering the site sensitivities. If we assume a facility size of 650MW and assume a cost of R20 million per MW, the capital expenditure (CAPEX) is estimated at approximately R6 billion.
- Only local expenditure is considered in this analysis.
- The construction of the Project will create an estimated 470 project specific full time equivalent (FTE) employment positions respectively. Approximately 71 skilled jobs, 141 semi-skilled jobs and 259 unskilled jobs.

6.3.1.2 Operation phase assumptions

The assumptions regarding the operation phase of the Project used in the modelling exercise are as follows:

- The facility will operate for approximately 20 years.
- The project sizes will depend on the project extent after considering the site sensitivities. If we assume a facility size of 650MW and assume a cost of R0.14 per KWh produced, the annual operational expenditure/costs (OPEX) is estimated at approximately R110 million.
- The operations of the Project will create an estimated 35 project specific full time equivalent (FTE) employment positions respectively. Approximately 4 skilled jobs, 14 semi-skilled jobs and 18 unskilled jobs.

6.3.1.3 Decommissioning phase assumptions

The costs of decommissioning REFs are not yet known. Given the nature of wind technology and the unlimited resource, it is highly likely that instead of decommissioning the REFs, they will be refurbished in order to extend its lifespan beyond the 20-year period.

6.3.2 Economic Impact Results

Using the Input/Output model methodology, various anticipated direct and indirect economic impacts of construction and operation phases of the proposed project have been identified. These economic impacts have been derived using an understanding of economic cause-effect relationships. The principle of cause-effect is that for any economic action, there can be a multitude of different economic reactions (effects).

6.3.2.1 Economic Impacts During the Construction Phase

The following table outlines the potential economic impacts during the construction phase of the Project. The total impact on production/business sales is likely to equate to R 24 billion (direct, indirect and induced) for the duration of construction and will largely be spent in Mpumalanga and Gauteng. The total impact on GDP (direct, indirect, and induced) is likely to be R 6,9 billion and create 470 direct FTE employment positions over the period of 24 months with the total impact on employment being 1 914 FTE employment positions. These will largely be felt through the construction sector and through the value chains associated with the construction of a wind farm.

Table 6-1: Estimated impact on the national and local economies (R' millions) as well as employment (FTE positions) for the duration of construction

Indicator	Direct	Indirect	Induced	TOTAL
Impact on Production	R6 000,0	R10 477,8	R7 951,3	**R24 429,2**
Impact on Gross Domestic Product	R1 714,9	R2 994,8	R2 272,6	**R6 982,3**
Impact on Personal Income	R818,1	R1 428,6	R1 084,1	**R3 330,7**
Impact on Employment	470	821	623	**1 914**

6.3.2.2 Economic Impacts During the Operation Phase

The table below provides the potential economic impacts during the operation phase of the Project, this specifically relates to the impact derived from the anticipated direct spend in the maintenance and upkeep of the facility. This does not account for the developer's mandated spend on community development projects, otherwise referred to as socio-economic development spend (SED).

The total impact on production/business sales once the project is fully operational is likely to equate to R 297 million (direct, indirect, and induced) per annum and will largely be spent in Mpumalanga and Gauteng. The total impact on GDP (direct, indirect, and induced) is likely to be R 180 million per year. It is anticipated that 35 South African based FTE employment positions will be created during the operational phase of the facility. The total impact on employment will be 95 FTE employment positions which will largely be experienced in the utilities sector and other value chains associated with wind farm operations.

Table 6-2: Estimated impact on the national and local economies (R' million) as well as employment (FTE positions) for the duration of operation

Indicator	Direct	Indirect	Induced	TOTAL
Impact on Production	R110,0	R88,7	R98,4	**R297,1**
Impact on Gross Domestic Product	R66,8	R53,8	R59,8	**R180,4**
Impact on Personal Income	R18,4	R14,9	R16,5	**R49,8**
Impact on Employment	35	28	31	**95**

6.4 PRELIMINARY IMPACT ASSESSMENT

The following sub-section will determine the preliminary impacts that the proposed 650MW Wind Farm will have.

6.4.1 Construction Phase Impacts

The following sub-sections indicate the impacts that are likely to occur during the construction phase of the proposed 650MW Wind Farm. Since the facility are expected to have both positive and negative effects in terms of the same indicator, the evaluation of impacts has been grouped accordingly.

Positive impacts during construction:

- Temporary stimulation of the national and local economy (GDP and Production)
- Temporary increase employment in the national and local economies
- Contribution to skills development in the country and local economy
- Temporary increase in household earnings
- Temporary increase in government revenue

Potential negative impacts during construction:

- Negative changes to the sense of place
- Safety and Security
- Agricultural Operations
- As associated with the influx of people
- Impacts on economic and social infrastructure

6.4.2 Operation Phase Impacts

The following sub-section describes the impact that the proposed 650MW Wind Farm will have once it is operational. The facility is envisaged to have a long lifespan, which means that the impacts observed during this phase, regardless of whether the impacts are positive or negative, will be long-lasting.

Positive impacts during operations:

- Sustainable increase in production and GDP nationally and locally
- Creation of sustainable employment positions nationally and locally
- Improved standards of living for benefiting households
- Sustainable increase in national and local government revenue
- Sustainable rental revenue for farms where the wind farm is located
- Sustainable increase in electricity available for the local region and South Africa

Potential negative impacts during operations:

- Negative changes to the sense of place
- Negative impact on agricultural operations

6.4.3 Decommissioning Phase Impacts

Upon the expiry of the Wind Farm's lifespan, the facility would need to be disbanded, although the facility would likely be upgraded in order to maintain and prolong the lifespan of the facility. If the facility is decommissioned, the land will be rehabilitated in order to return it to pre-project conditions. This also means that all impacts whether positive or negative, which take place during the operation phase will cease to exist.

At the same time spending on the disassembly of the components and rehabilitation of land will increase the demand for construction services and other industries, thus stimulating economic activity in the local area, albeit over a temporary period. Socio-economic impacts stimulated during the decommissioning phase are expected to be similar to those that took place during the construction phase. However, people who were permanently employed at the facility during the operational phase will lose their jobs during the decommissioning phase.

6.5 IDENTIFICATION OF SOCIAL AND ECONOMIC IMPACTS

This sub-section presents the analysis of the socio-economic impacts that are expected to ensue as a result of the development of the proposed Project and an evaluation of these impacts according to the predefined criteria. The potential socio-economic impacts identified arise as a consequence of construction, operation, and closure of the proposed 650MW Wind Farm.

6.5.1 Impacts Ensued During Construction

ENVIRONMENTAL PARAMETER	ISSUE / IMPACT / ENVIRONMENTAL EFFECT/ NATURE	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION									RECOMMENDED MITIGATION MEASURES	ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION								
		E	P	R	L	D	I / M	TOTAL	STATUS (+ OR -)	S		E	P	R	L	D	I / M	TOTAL	STATUS (+ OR -)	S
Construction Phase																				
Increase in production	Expenditure associated with the construction of the proposed 650MW Wind Farm will impact on the production of the local economy.	3	4	4	1	1	4	52	+	High	» The project developer should use locally sourced inputs where feasible in order to maximize the benefit to the local economy. » Sub-contracting of local construction companies to occur as far as possible for the construction of facilities.	4	4	4	1	1	4	56	+	High
Increase on GDP	Temporary increase in country's GDP due to capital expenditure during the construction period	3	4	4	1	1	4	52	+	High	» The project developer is to use locally sourced inputs where feasible in order to maximize the benefit to the economy.	4	4	4	1	1	4	56	+	High
Increase in Employment	The construction of the 650MW Wind Farm will positively impact the community and beyond by creating a number of job opportunities (albeit temporary).	3	4	3	1	1	4	48	+	High	» Organise local community meetings to advise the local labour on the project that is planned to be established and the jobs that can potentially be applied for. » Where feasible, effort must be made to employ locally in order to create maximum benefit for the communities.	4	4	4	1	1	4	56	+	High

ENVIRONMENTAL PARAMETER	ISSUE / IMPACT / ENVIRONMENTAL EFFECT/ NATURE	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION									RECOMMENDED MITIGATION MEASURES	ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION								
		E	P	R	L	D	I / M	TOTAL	STATUS (+ OR -)	S		E	P	R	L	D	I / M	TOTAL	STATUS (+ OR -)	S
Skills development	Employees will develop and enhance skills thereby increasing experience and knowledge.	3	4	3	1	1	3	36	+	Medium	» In order to maximise the positive impact, it is suggested that the project company provide training courses for employees where feasible to ensure that employees gain as much as possible from the work experience. » Facilitate the transfer of knowledge between experienced employees and the staff. » Perform a skills audit to determine the potential skills that could be sourced in the area.	3	4	4	1	1	3	39	+	Medium
Increase in household earnings	Employed individuals will increase the income of their respective households and thereby experience an improvement in their standard of living.	3	4	3	1	1	4	48	+	High	» Local employment will benefit local households and the local area.	3	4	4	1	1	4	52	+	High
Increase in government revenue	The investment in the facility will generate revenue for the government during the construction period through a combination of personal income tax, VAT, companies' tax etc.	2	4	2	1	1	3	30	+	Medium	**N/A**	2	4	2	1	1	3	30	+	Medium

ENVIRONMENTAL PARAMETER	ISSUE / IMPACT / ENVIRONMENTAL EFFECT/ NATURE	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION									RECOMMENDED MITIGATION MEASURES	ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION								
		E	P	R	L	D	I / M	TOTAL	STATUS (+ OR -)	S		E	P	R	L	D	I / M	TOTAL	STATUS (+ OR -)	S
Sense of place	Negative impact on sense of place (noise, dust and visual) for farmers where construction activities will take place	1	4	2	2	1	3	30	-	Medium	» Ensure proper health and safety plans in place during the construction period to ensure safety on and around site during construction » Install screens around the construction site to reduce the visual impact of construction on surrounding properties Site watering (or use of appropriate dust suppressant) from time to time to reduce dust emitting from the construction site	1	4	2	2	1	2	20	-	Low
Safety and Security	Farmers might feel that the increase of accessibility will increase theft in the area	1	3	3	3	1	3	33	-	Medium	» Ensure proper 24/7 security is patrolling the construction sites, as well as controlled access	1	2	3	3	1	2	20	-	Low
Impact on agricultural operations	Loss of agricultural space	1	3	3	3	1	4	44	-	High	» Construct the wind turbines on parts where the least arable land will be affected	1	3	3	3	1	3	33	-	Medium
Temporary increase in social conflicts associated with the influx of people	An impact on the demographics of the area as a result of in-migration in response to job opportunities will occur.	2	3	3	3	1	3	36	-	Medium	» Where feasible, effort must be made to employ local labour in order to create maximum benefit for the communities and limit in-migration. » Train unemployed local community members with insufficient skills and increase absorption of local labour thereby decreasing in-migration.	2	3	3	3	1	2	24	-	Medium

ENVIRONMENTAL PARAMETER	ISSUE / IMPACT / ENVIRONMENTAL EFFECT/ NATURE	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION									RECOMMENDED MITIGATION MEASURES	ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION								
		E	P	R	L	D	I / M	TOTAL	STATUS (+ OR -)	S		E	P	R	L	D	I / M	TOTAL	STATUS (+ OR -)	S
Impacts on economic and social infrastructure	An increase in traffic due to construction vehicles and heavy vehicles could create short-term disruptions and safety hazards for current road users.	3	3	2	2	1	3	33	-	Medium	» Provide public transportation service for workers in order to reduce congestion on roads » Partner with local municipalities and other prominent users of the local roads to upgrade them to meet the required capacity and intensity of the vehicles related to the planned construction activities » Transportation contractors must adhere to the road rules and regulations » Utilise only designated access routes & entrance/exits from the site » Implement appropriate signage & road safety measures at entrance/exit to the site and on site	3	3	2	2	1	2	22	-	Low

6.5.2 Impacts Ensued During Operations

ENVIRONMENTAL PARAMETER	ISSUE / IMPACT / ENVIRONMENTAL EFFECT/ NATURE	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION									RECOMMENDED MITIGATION MEASURES	ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION								
		E	P	R	L	D	I / M	TOTAL	STATUS (+ OR -)	S		E	P	R	L	D	I / M	TOTAL	STATUS (+ OR -)	S
Construction Phase																				
Increase in production	Expenditure associated with the operations of the proposed 650MW Wind Farm will impact on the production of the local economy.	3	3	4	3	3	3	48	+	High	» The project developer should make effort to use locally sourced inputs where feasible in order to maximize the benefit to the local economy. » Local Small and Medium Enterprises are to be approached to investigate the opportunities for supplying inputs required for the maintenance and operation of the facility, as far as feasible.	3	4	4	3	3	3	51	+	High
Increase on GDP	Temporary increase in country's GDP due to operational expenditure	3	3	4	3	3	3	48	+	High	» The project developer is to make an effort to use locally sourced inputs where feasible in order to maximize the benefit to the local economy. » Local Small and Medium Enterprises are to be approached to investigate the opportunities for supplying inputs required for the maintenance and operation of the facility, as far as feasible.	3	4	4	3	3	3	51	+	High
Increase in Employment	The operation of the 650MW Wind Farm will positively impact the community and beyond by creating a number of job opportunities.	2	3	3	3	3	2	28	+	Medium	» Where feasible, effort must be made to employ locally in order to create maximum benefit for the communities.	2	4	3	3	3	2	30	+	Medium

ENVIRONMENTAL PARAMETER	ISSUE / IMPACT / ENVIRONMENTAL EFFECT/ NATURE	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION									RECOMMENDED MITIGATION MEASURES	ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION								
		E	P	R	L	D	I / M	TOTAL	STATUS (+ OR -)	S		E	P	R	L	D	I / M	TOTAL	STATUS (+ OR -)	S
Increase in household earnings	Employed individuals will increase the income of their respective households and thereby experience an improvement in their standard of living.	2	3	3	3	3	3	42	+	Medium	» Employing locally will increase benefit to local households and the local area	2	4	3	3	3	3	45	+	High
Increase in government revenue	The investment in the facility will generate revenue for the government during the construction period through a combination of personal income tax, VAT, companies' tax etc.	3	3	2	3	3	3	42	+	Medium	**N/A**	3	3	2	3	3	3	42	+	Medium
Rental revenue for landowners	The landowners will receive monthly/ annual compensation for the wind turbines situated on their farms, this will help to increase the landowner's revenue to ensure sustainability on the farms.	1	3	2	3	3	3	36	+	Medium	**N/A**	1	3	2	3	3	3	36	+	Medium
Sustainable increase in electricity	The additional electricity that will be generated will increase electricity supply in the country.	4	4	3	3	3	3	51	+	High	**N/A**	4	4	3	3	3	3	51	+	High
Sense of place	Negative impact on sense of place (noise and visual).	1	3	2	2	3	3	33	-	Medium	**N/A**	1	3	2	2	3	3	33	-	Medium

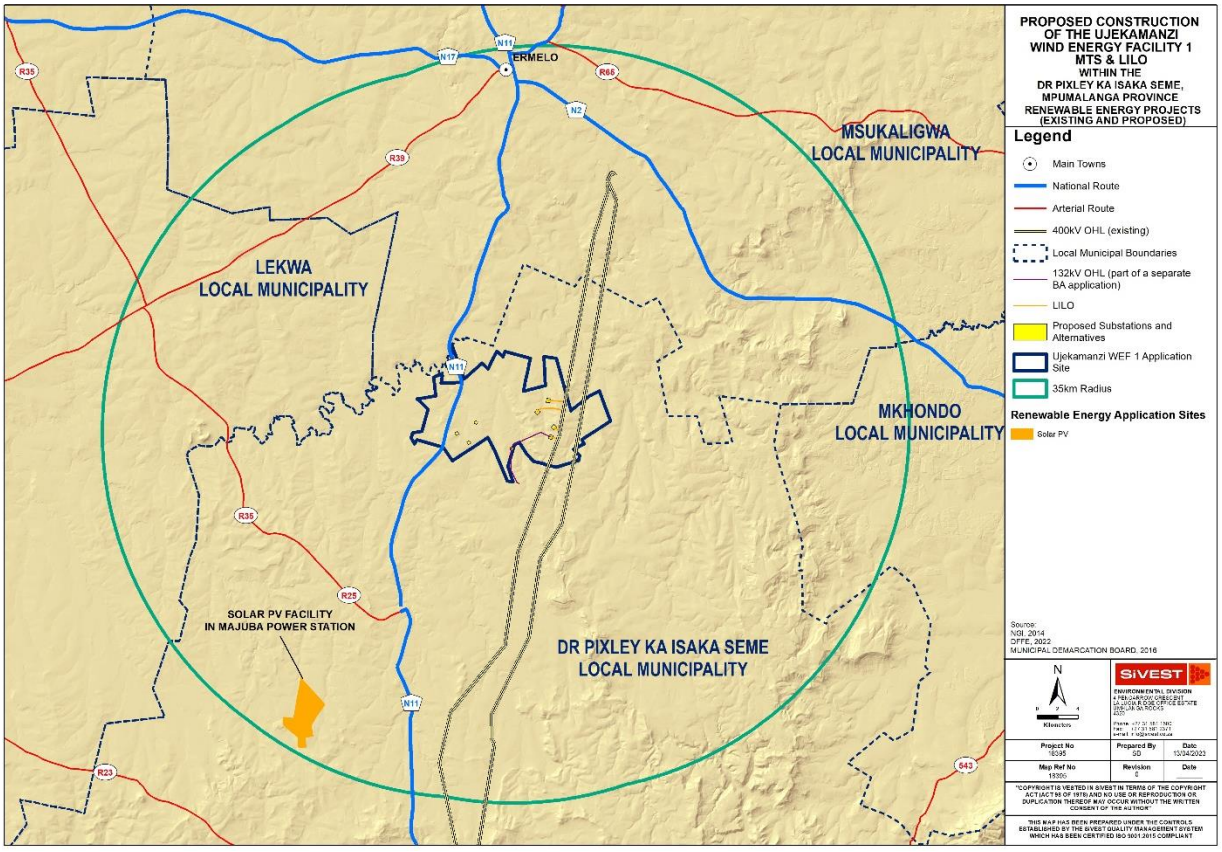
ENVIRONMENTAL PARAMETER	ISSUE / IMPACT / ENVIRONMENTAL EFFECT/ NATURE	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION									RECOMMENDED MITIGATION MEASURES	ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION								
		E	P	R	L	D	I / M	TOTAL	STATUS (+ OR -)	S		E	P	R	L	D	I / M	TOTAL	STATUS (+ OR -)	S
Impact on agricultural operations	Loss of agricultural space	1	4	3	3	3	3	42	-	Medium	» Construct the wind turbines on parts where the least arable land will be affected	1	3	3	3	3	3	39	-	Medium

6.6 CUMULATIVE IMPACTS

Only one other known authorised renewable energy facility has been identified that will create the conditions for cumulative effect, namely Solar PV Facility in Majuba Power Station (see Map 6-1). Only cumulative impacts that will have the potential for a significant influence are analysed:

- **Increase in GDP and production -** The initial investment spend on the project will inject significant business sales/ production for the local and regional economy. The economic impact arising from the initial investment will be felt throughout the economy with windfall effects benefitting related sectors in the economy.
- **Employment creation -** Increase in employment creation for the local workforce.
- **Demographic shifts -** Influx of migrant labour and job seekers due to job opportunities presented by numerous projects.

Map 6-1: Cumulative Projects within 35km Radius of Proposed Project



Source: (SiVEST, 2023)

In addition to the negative cumulative impact noted above (i.e., demographic shifts), numerous positive impacts are expected to accumulate in the region such as increased production, GDP, employment, skills and household income.

Table 6-3: Cumulative Impacts

ENVIRONMENTAL PARAMETER	ISSUE / IMPACT / ENVIRONMENTAL EFFECT/ NATURE	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION									RECOMMENDED MITIGATION MEASURES	ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION								
		E	P	R	L	D	I / M	TOTAL	STATUS (+ OR -)	S		E	P	R	L	D	I / M	TOTAL	STATUS (+ OR -)	S
Cumulative																				
Increase in production	Expenditure associated with the construction of the Projects will have an impact on the production of the local economy.	3	4	3	4	4	3	54	+	High	N/A	3	4	3	4	4	3	54	+	High
Increase on GDP	Temporary increase in country's GDP due to capital expenditure	3	4	3	4	4	3	54	+	High	N/A	3	4	3	4	4	3	54	+	High
Increase in Employment	The construction of the MTS will positively impact the community and beyond by creating a number of job opportunities (albeit temporary).	3	4	3	3	4	3	51	+	High	» Organise local community meetings to advise the local labour on the project that is planned to be established and the jobs that can potentially be applied for. » Where feasible, effort must be made to employ locally in order to create maximum benefit for the communities.	3	4	4	3	4	3	54	+	High
Temporary increase in social conflicts associated with the influx of people	An impact on the demographics of the area as a result of in-migration in response to job opportunities will occur.	2	3	3	3	1	3	36	-	Medium	» Where feasible, effort must be made to employ local labour in order to create maximum benefit for the communities and limit in-migration. » Train unemployed local community members with insufficient skills and increase absorption of local labour thereby decreasing in-migration.	2	3	2	3	1	3	33	-	Medium

7 CONCLUSION AND RECOMMENDATIONS

This Scoping Report focused on the collection of available secondary information in order to provide a social baseline against which potential social impacts which may be associated with the development of the 650MW Wind Farm could be identified. A summary of the potential positive and negative impacts identified for the detailed design and construction, and operation phase are presented in Table 7-1 and Table 7-2.

Table 7-1: Summary of potential socio-economic impacts identified for the detailed design and construction phase.

Impact	Status	Significance (After mitigations/enhancements)
Increase in production	Positive	High (56)
Increase on GDP	Positive	High (56)
Increase in Employment	Positive	High (56)
Skills development	Positive	Medium (39)
Increase in household earnings	Positive	High (52)
Increase in government revenue	Positive	Medium (30)
Sense of place	Negative	Low (20)
Safety and Security	Negative	Low (20)
Impact on agricultural operations	Negative	Medium (33)
Temporary increase in social conflicts associated with the influx of people	Negative	Medium (24)
Impacts on economic and social infrastructure	Negative	Low (22)

Table 7-2: Summary of potential socio-economic impacts identified for the operational phase.

Impact	Status	Significance (After mitigations/enhancements)
Increase in production	Positive	High (51)
Increase on GDP	Positive	High (51)
Increase in Employment	Positive	Medium (30)
Increase in household earnings	Positive	High (45)
Increase in government revenue	Positive	Medium (42)
Rental revenue for landowners	Positive	Medium (36)
Sustainable increase in electricity	Positive	High (51)
Sense of place	Negative	Medium (33)
Impact on agricultural operations	Negative	Medium (39)

Table 7-3: Summary of potential cumulative impacts

Impact	Status	Significance (After mitigations/enhancements)
Impact on Production	Positive	High (54)
Increase on GDP	Positive	High (54)
Employment Creation	Positive	High (54)
Influx of people	Negative	Medium (33)

The potential social and economic impacts identified for the project and listed within Table 7-1 and Table 7-2 have been identified based on an assessment of available information and the current understanding of the proposed project and are not exhaustive. The cumulative impacts that will have a significant impact is summarised in Table 7-3.

The possibility therefore exists that additional impacts may be identified as part of the public review period, or during the collection of primary data as part of the EIA level. All potential social impacts identified as part of the process will be assessed in detail during the EIA Phase.

7.1 CONCLUSION

A number of potential positive and negative social impacts have been identified for the project, which require further investigation as part of the EIA phase. Based on the findings of this Socio-Economic Impact Assessment Scoping Report, no red flags or fatal flaws have been identified from a socio-economic perspective which could preclude the development of the 650MW Wind Farm.

7.2 RECOMMENDATIONS

It is recommended that a full EIA level Socio-Economic Impact Assessment be conducted as part of the EIA phase. The following activities should be undertaken as part of this process:

- Review comments pertaining to social impacts received from members of the key stakeholders, and any organ of state during the public review of the Scoping Report. Where applicable, comments received from DEA on the Final Scoping Report, which may pertain to socio-economic impact assessment, will also be reviewed.
- Collect primary data. Interview key stakeholders to obtain primary information related to the project site, socio-economic environment, and to gain their inputs on the proposed project and its perceived impact (positive and /or negative).
- Update the baseline information with information received during the data collection, as well as any additional information received from the client, or updates to the project description.
- Assess impacts identified for the project in terms of their nature, extent, duration, magnitude, probability, status, and significance; as well as the degree to which the impact can be reversed, may cause irreplaceable loss of resources, and can be mitigated.
- Identify mitigation measures with which to reduce negative impacts and enhance positive impacts for inclusion in the Environmental Management Programme (EMPr).
- Provide a reasoned opinion regarding the acceptability of the project, and whether the proposed project should be authorised.
- Prepare a Socio-Economic Impact Assessment Report for inclusion in the EIA Report to be prepared for the project.

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