SOCIO-ECONOMIC IMPACT ASSESSMENT FOR THE SOLAR PV (150MW FACILITY) ON A SITE NEAR BETHAL AND MORGENZON, MPUMALANGA PROVINCE

Socio-Economic Impact Assessment Scoping Report - (150MW Solar PV)

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Abbreviations

UEREF	Ummbila Emoyeni Renewable Energy Facility
BESS	Battery Energy Storage System
NERSA	National Energy Regulator South Africa
JET	Just Energy Transition
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 Savannah Environmental (Pty) Ltd on behalf of the client Emoyeni Renewable Energy Farm (Pty) Ltd, to provide specialist socio-economic impact assessment inputs of the proposed 150MW Solar PV Facility near Bethal and Morgenzon. Emoyeni Renewable Energy Farm (Pty) Ltd is proposing a development for a renewable energy facility, collectively known as the Ummbila Emoyeni Renewable Energy Facility (UEREF), consisting of the following segments:

- Commercial Wind Farm
- Solar PV Facility
- Associated grid infrastructure, including a battery energy storage system

The battery energy storage system will be located approximately 6km southeast of Bethal in the Mpumalanga Province of South Africa. The preferred project focus area, with an extent of 27 819ha, has been identified by Emoyeni Renewable Energy Farm (Pty) Ltd as a technically suitable area for the development of the UEREF with a contracted capacity of up to 500MW of wind energy and 150MW of solar energy. This layout and project capacity might reduce as the EIA and scoping process identifies environmental constraints that exclude areas for development.

The project site comprises the following farm portions:

Table 1-1: Project Site Farm Portions

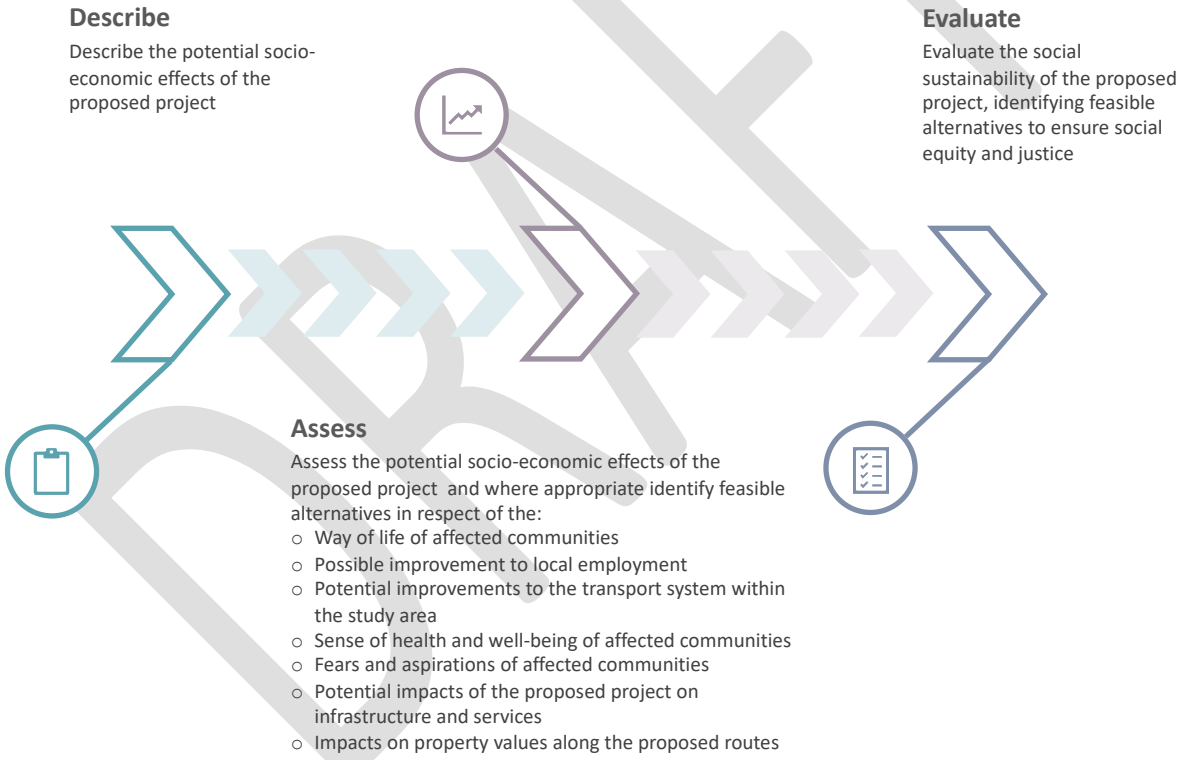
Parent Farm Number	Farm Portions
Farm 261 – Naudesfontein	15, 21
Farm 264 – Geluksplaats	0, 1, 3, 4, 5, 6, 8, 9, 11, 12
Farm 268 – Brak Fontein Settlement	6,7,10,11,12
Farm 420 – Rietfontein	8,9,10,11,12,15,16,18,19,22,32
Farm 421 - Sukkelaar	2, 2, 7, 9, 9 10, 10 11, 11 12, 12 22 ,25, 34, 35, 36, 37, 37, 38, 39, 40, 42, 42
Farm 422 – Klipfontein	0, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 13, 14, 16, 17, 18, 19, 20, 21, 22, 23
Farm 423 – Bekkerust	0, 1, 2, 4, 5, 6, 10, 11, 12, 13 14, 15, 17, 19, 20, 22, 23, 2425
Farm 452 – Brakfontein	5
Farm 454 – Oshoek	4, 13, 18
Farm 455 – Ebenhaezer	0, 1, 2, 3
Farm 456 – Vaalbank	1, 2, 3, 4, 7, 8, 13, 15, 16, 17, 18, 19
Farm 457 – Roodekrans	0, 1, 4, 7, 22, 23, 23
Farm 458 – Goedgedacht	0, 2, 4, 4, 5, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 21, 21, 22, 25, 26, 27, 28, 29, 31, 32, 33, 34, 35, 37, 39
Farm 467 – Twee Fontein	0, 1, 4, 5, 6, 7, 8, 10
Farm 469 – Klipkraal	5, 6, 7, 8
Farm 548 – Durabel	0

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 UEREF. This report deals with the scoping phase of the 150MW Solar PV Facility.

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 Eastern Cape 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.

1.7 Outline of the Report

Section 1: ***Introduction***	Describe the project objectives and scope of work as well as the research methodology and source of information
Section 2: ***Description of Proposed Project***	Describe the project in terms of the location, activities taking place, equipment and facilities, and anything else that constitutes the project such as the needs and desirability analysis
Section 3: ***Policy Review***	Analyse the relevant national, provincial and local policies and evaluate the project alignment within those policies
Section 4: ***Socio-Economic Analysis***	Identify and analyse the socio-economic and economic analysis of the study areas
Section 5: ***Area of Impact***	Define the area of impact, the zones of influence as well as the socio-economic profile of the area
Section 6: ***Preliminary Impacts Identification***	Assesses the positive and negative impacts, their duration and extent, as well as the intensity of the impacts
Section 7: ***Conclusion and Recommendations***	

2 DESCRIPTION OF THE PROPOSED PROJECT

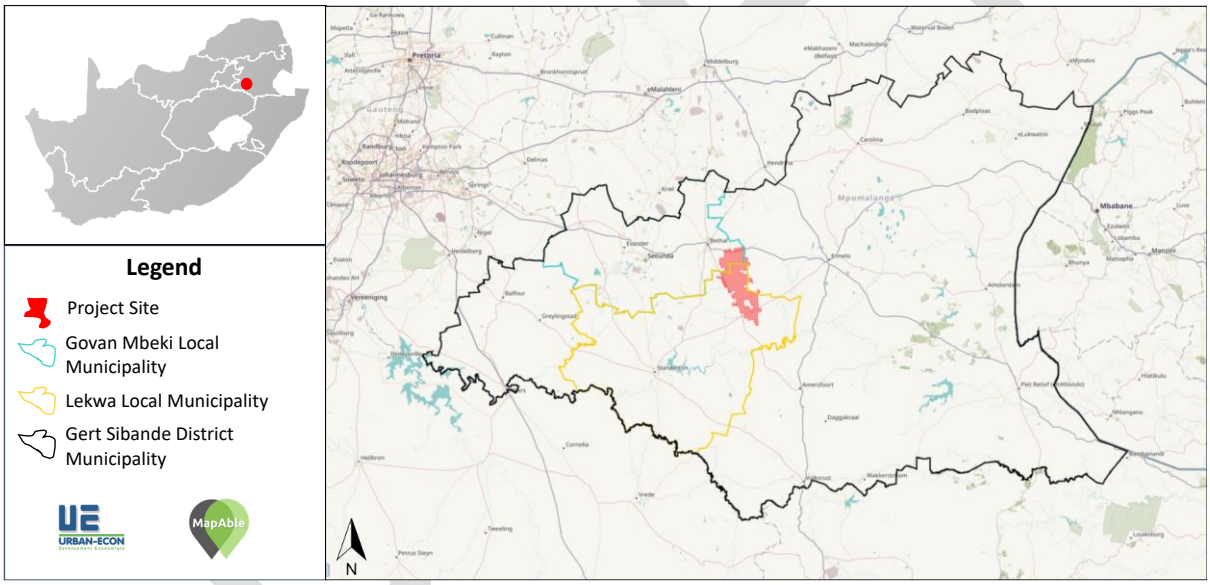
In this section a description of the proposed 150MW Solar PV Facility is provided. The site where the proposed project will be located and the activities that will take place on and off the site will be discussed.

***Description of Solar PV needed**

2.1 Site Location

The project is located in the Govan Mbeki, Lekwa and Msukaligwa Local Municipalities and within the Gert Sibande District Municipality in Mpumalanga. Map 2-1 below indicates the locations of the proposed UEREF on a macro-level.

Map 2-1: Ummbila Emoyeni Renewable Energy Farm Location



Source: MapAble, 2022

2.2 Project Details

The solar PV facility is proposed to accommodate the following infrastructure:

- PV modules and mounting structures with a capacity per panel of 350W to 450W and dependent on optimization and cost
- Inverters and transformers
- 33kV/132kV onsite collector substation
- Battery Energy Storage System (BESS)
- Cabling between project components
- Laydown and O&M hub (approximately 300m x 300m):
    - Construction compound (temporary)
    - Maintenance office
- Access roads (up to 12m wide)

2.3 Description of Planned Construction Activities and Methodology

***Description of planned construction activities as well as the methodology needed**

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 UEREF 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), 2019). 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), 2019).

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, there has been an increasing shift towards the responsible utilisation of non-renewable energy sources and towards sustainable and non-polluting methods of energy production. The Renewables 2019 Global Status Report GSR (The Renewables 2019 Global Status Report, 2019) noted that there has been an increase of utilisation of renewable energy around the world and there has been a steady increase in the amount of MW produced by sustainable sources (REN21, 2019). Global renewable power capacity grew to around 2 378 GW in 2018. For the fourth year in a row, additions of renewable power generation capacity outpaced net installations of fossil fuel and nuclear power combined. Around 100 GW of solar photovoltaics (PV) was installed – accounting for 55% of renewable capacity additions – followed by wind power (28%) and hydropower (11%). Overall, renewable energy has grown to account for more than 33% of the world's total installed power generating capacity (REN21, 2019).

South Africa is regarded as a prime candidate for increased use of renewable energy with abundant natural resources of sun and wind. The further development of renewable energy will align to the current shift in international trends and align well with the available resources of the country. The cost of renewables, notably solar and wind, has fallen significantly in South Africa. Solar PV and wind costs have fallen 80% and 60%, respectively, in just four years (McSweeney & Timperley, 2018). New renewable capacity is now "considerably cheaper" than coal plants proposed or under construction (McSweeney & Timperley, 2018).

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 2-1: 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 deduced 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 2-2: 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

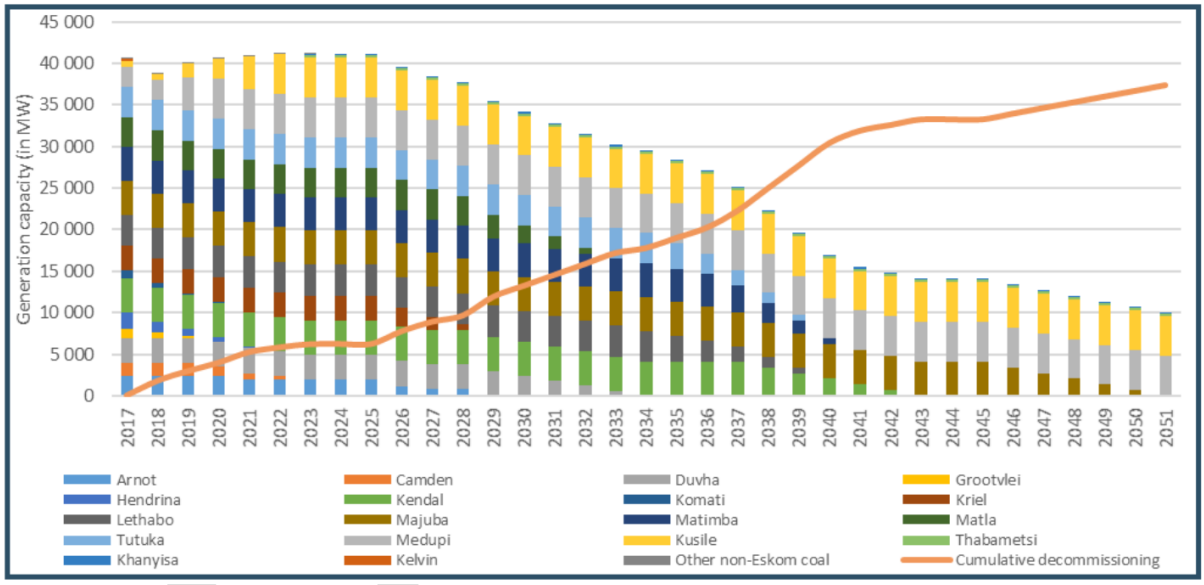
Source: (International Institute for Sustainable Development, 2018)

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)

The 2019 Integrated Resource Plan (IRP) for electricity scheduled the decommissioning of Eskom's fleet of coal-fired power stations, stipulating that 5 200 MW of coal-based generation capacity will be decommissioned by 2022, 11 000 MW by 2030, and 35 000 MW by 2050. This trajectory will fundamentally alter the energy mix in South Africa with broad socio-economic implications.

2.4.3 Likely impact of COVID-19 on the South African economy

As stated above, the impact of COVID-19 has yet to be fully quantified as the pandemic is still ongoing at the time of drafting this report. Predictions from various sources indicate that the impact of COVID-19 on the global economy may be similar or slightly worse than the global financial crisis of 2007-2008.

Indeed, at this point the large declines in bank equity prices since mid-January 2020 suggest that investors are concerned about profitability and prospects for the banking sector (Adrian & Natalucci, 2020). For example, measures of bank capitalisation based on market prices are now worse than during the 2008 global financial crisis in many countries. The concern is that banks and other financial intermediaries may act as an amplifier should the crisis deepen further (Adrian & Natalucci, 2020). Emerging markets risk bearing the heaviest burden in this time of distress. In fact, emerging markets have experienced the sharpest portfolio flow reversal on record—about $100 billion or 0.4 percent of their GDP—posing stark challenges to more vulnerable countries (Adrian & Natalucci, 2020). South Africa has not been spared this burden, which has been exacerbated as a result of the sub-investment downgrade by credit ratings agencies in 2017 and 2020.

At a local level, sources expect the GDP of South Africa to contract between 4%-8% e-SEK (Making sense of COVID-19's impact on South African businesses, 2020) and van Week (SA's "big bazooka" stimulus package explained, 2020), with a revenue shortfall of between R 70 and R 100 billion. The budget deficit is expected to accelerate from an initial forecast of 6.8% of GDP to more than 10% (van Wyk C. , 2020). Once this shock to the economic and social system has been dealt with at a national and international level, there will be a need to strengthen and develop the South African economy. One of the necessary components of a functional economy will be the provision of a stable electricity supply. The South African energy provision system is currently and has in the past decade been, notoriously unreliable which has had a major impact on investor confidence and the overall development of the country.

2.4.4 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 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 UEREF 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.

2.4.5 Assessment of business confidence levels in South Africa

The South African Chamber of Commerce and Industry (SACCI) Business Confidence Index (BCI) declined by 2.9 index points from 95.1 index points in January 2019 to 92.2 index points in January 2020. This was followed by a slight increase in BCI to 92.7 in February 2020. However, BCI levels dropped significantly to 89.9 making it the lowest level since August 2019. This was due to lower sales of new vehicles, a weaker rand exchange rate and lower share prices highlighting the impact of Coronavirus Disease 2019 (COVID-19) on the country's trading partners and on the domestic economy.

Additionally, the local demand of goods and services declined due to the national lockdown imposed by the Government in order to reduce the spread of the COVID-19 (SACCI, 2020a) (SACCI, 2020b).

The BCI increased from an average of 86.5 to 93.9 between 2020 and 2021, indicating an improvement and recovery imposed by COVID-19. The BCI in January 2022 was calculated at 94.1, which is 0.4 points lower that January 2021 (SACCI, 2022).

This resulted from unfavourable economic conditions facilitated by the external COVID-19 health shock and its impact which resulted in a restricted business climate and a restricted South African economy. The following indicators should be taken into consideration when analysing the business environment as they negatively contributed to the BCI:

- Energy Supply
- Manufacturing
- Imports
- Construction
- Inflation
- Precious metal prices
- Rand exchange rate

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

- Exports
- Vehicle sales
- Share prices
- Real financing costs

Thus, the business confidence levels in South Africa have been uncertain owing to the abovementioned conditions. Overall, the SACCI BCI trended downwards from 103.2 to 94.0 index points between March 2013 and March 2021. Furthermore, business confidence levels in the country plunged to their lowest levels in more than two decades in the first quarter of 2020 and could weaken even further due the effects of the COVID-19 and oil price drops. These issues affect both the local and global economies (SAPOA, 2020).

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).

2.4.6 Agricultural Price Increases

Fuel and diesel are commonly used for tillage, harvesting, machinery and transportation, making them a critical component for both small-scale and commercial farmers, as well as the entire agricultural value chain (Maree, 2019). According to van Wyk, (SABC News, 2018) the continuous rise in fuel price is having a negative impact on the agricultural sector. Diesel is now the second most expensive input cost for grain farmers after fertiliser. In a country where maize is a staple food, the rise in diesel will also have a negative effect on poor communities.

Rising input costs — higher fuel, labour, fertiliser, energy and agrochemical costs for those in field crops and horticulture — are squeezing producers and calls have been made for some sort of intervention. Regarding direct input products, herbicides such as glyphosate, atrazine and metolachlor, prices were up by 99%, 33% and 32% respectively in 2021. The same trend persists in major fertilisers such as ammonium nitrate, urea and potassium chloride, the prices of which were up 107%, 58% and 125% respectively (Sihlobo & Kapuya, 2021).

These increases in input costs continuously put pressure on farmers on a daily basis. It is worth mentioning that the proposed UEREF could help diversify the landowner's income, potentially helping to counter these escalating costs.

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.	(Department of Energy, 2019)

Policy	Key Policy Objectives	Source

	• Allocations to safeguard the development of wind energy projects aligned with the Integrated Resource Plan (IRP) 2010 should continue to be pursued:
	  ○ Ensure energy security and supply
	  ○ Reduce environmental impacts
	  ○ Endorse job creation and localisation
	  ○ Lessen cost of energy
	  ○ Reduce water consumption
	  ○ Diversify supply sources
	  ○ Promote energy efficiency
	  ○ 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:
	  ○ Developing a sector plan based on the province's strengths in natural resources endowments
	  ○ Expanding on the economic, green and environmental initiatives that are already
		(DNA Economics, 2016)

Policy	Key Policy Objectives	Source
	underway in the province in order to facilitate quick wins o 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: o Provides for the transfer of hunting and other rights of a holder of a certificate of adequate enclosure. o Provides for the MEC's general powers in respect of wild animals. o Details restricted activities involving provincially protected and endangered species. o Stipulates obligations of holders of certificates of adequate enclosure. o 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 & Govan Mbeki, Lekwa and Msukaligwa LM		
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. • 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	(Gert Sibande District Municipality, 2021)

Policy	Key Policy Objectives	Source
	○ Create capacity to accommodate new developments	
Govan Mbeki Local Municipality, LED 2014	• The LED indicates side linkage opportunities such as new energy sources (preferably renewable energy such as solar and wind) • Also mentioned in the LED is rural economic sector development with renewable energy as an opportunity. • Renewable energy is listed as and economic sector that the local municipality should focus on.	(Govan Mbeki Municipality, 2014)
Govan Mbeki Local Municipality, IDP 2021	• One of the strategic goals identified by the IDP is renewable energy and energy efficiency. • The IDP states that the phasing in of renewable energy options, which include concentrated solar power, wind and natural gas, will reduce dependence on coal resources. • THE IDP indicated that the local municipality support the transition to a low-carbon economy by speeding up and expanding renewable energy implementation.	(Govan Mbeki Local Municipality, 2021)
Lekwa Local Municipality, IDP 2021	• The IDP indicated that the electricity and energy department should develop and adopt by laws that promote renewable energy and energy efficiency. • Green Economy initiatives to mitigate the negative impact of climate change & create new green job opportunities is seen as a priority area within the local municipality.	(Lekwa Local Municipality, 2021)
Msukaligwa Local Municipality, IDP 2020/2021	• The IDP states that considering the challenges at Eskom, Government is taking the following measures to rapidly and significantly increase generation capacity outside of Eskom: ○ Enabling the development of additional grid capacity from renewable energy, natural gas, hydropower, battery storage and coal. ○ Government will negotiate supplementary power purchase agreements to acquire additional capacity from existing wind and solar plants. ○ Initiate the procurement of emergency power from projects that can deliver electricity into the grid within three to 12 months from approval.	(Msukaligwa Local Municipality, 2021)

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 Govan Mbeki, Lekwa and Msukaligwa local municipalities that falls within the Gert Sibande district.

4.1 Population, Income and Employment Profile

The Lekwa, Govan Mbeki and Msukaligwa Local Municipalities 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 2010 and 2020 was 1,9% (Lekwa), 2,2% (Govan Mbeki) and 2,0% (Msukaligwa) year-on-year for the local municipalities which compared favourably or similar to the district municipality (1,9%) and Mpumalanga (1,6%) over the same period. The high population growth in Govan Mbeki and Msukaligwa indicates that the municipality offers several opportunities, attracting people towards the area, this can also be motivated by the high population density (121 km^2) in comparison to the other areas as well as the higher average monthly household income, which is the highest (R16 755,00) of all the areas in review.

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

Indicator	Mpumalanga	Gert Sibande District Municipality	Lekwa Local Municipality	Govan Mbeki Local Municipality	Msukaligwa Local Municipality
Area (km^2)	76 495	31 840	4 585	2 954	6 015
Population	4 821 139	1 290 117	148 706	356 532	186 123
Number of Households	1 291 462	338 534	39 993	102 847	50 850
Population density (km^2)	63	41	32	121	31
Average household size	3,8	3,7	3,6	3,6	3,8
Annual population growth (2010-2020)	1,6%	1,9%	1,9%	2,2%	2,0%
Average monthly household income	**R10 504**	**R10 851**	**R10 797**	**R16 755**	**R10 952**

Source: Quantec Standardised Regional (2022); Stats SA (2011) forecast to 2022

The average household income for the Gert Sibande District Municipality in 2022 is estimated to be R10 851,00. The proposed UEREF will also attract additional population to the study area as several employment opportunities will be created through the development, this will ensure a sustainable population growth.

Table 4-2: Employment profile of the study areas

Indicator	Mpumalanga	Gert Sibande District Municipality	Lekwa Local Municipality	Govan Mbeki Local Municipality	Msukaligwa Local Municipality
Employed	1 112 708	302 264	42 973	108 682	48 694
Unemployment Rate	31,7%	31,0%	26,5%	28,5%	28,2%
Not Economically Active	1 420 762	379 585	40 093	89 777	52 845
Labour force participation rate	36,5%	37,0%	43,6%	44,9%	40%

Source: Quantec Standardised Regional (2022)

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 lower unemployment rate and higher labour force participation relative to the district averages further suggests that both the local municipalities are subject to inward migration due to the employment opportunities available within the local municipalities.

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.

Nationally, South Africa's Gross Domestic Product (GDP) recorded its fourth consecutive quarter growth, expanding with 1,2% in the second quarter of 2021 (April-June), this followed the increase of 1% in the first quarter (January-March). However, despite the gains made over the last four quarters, the economy is 1,4% smaller than what it was before the COVID-19 pandemic (StatsSA, 2021).

4.2.1 Regional economic profile

The GVA (Gross Value Added) of the Lekwa Local Municipality was R 19 million in 2020 (constant prices), which collectively accounts for just over 10% of the district economy's GVA, and 3% of the Mpumalanga's. The Govan Mbeki Local Municipality had a GVA of R 103 million in 2020, which accounts for 53% of the district's economy, and 17% of the province. The proposed UEREF will contribute further to the economy and ensure sustainability.

Table 4-3: Economic structure between 2010 and 2020 (constant 2015 prices; R' millions)

Sector	Mpumalanga		Gert Sibande District Municipality		Lekwa Local Municipality		Govan Mbeki Local Municipality		Msukaligwa Local Municipality	
	2010	2020	2010	2020	2010	2020	2010	2020	2010	2020
Agriculture and hunting	4,21%	6,37%	4,39%	6,56%	8,69%	13,82%	1,29%	2,65%	6,04%	7,83%
Mining and quarrying	19,81%	20,78%	17,70%	16,83%	13,39%	10,37%	19,82%	17,99%	24,76%	25,67%
Manufacturing	29,09%	24,14%	41,84%	38,12%	22,26%	14,84%	53,53%	49,61%	25,63%	25,16%
Electricity, gas and water	6,05%	5,89%	4,14%	3,82%	10,36%	5,03%	1,64%	1,87%	6,40%	8,27%
Construction	4,43%	3,58%	3,41%	3,04%	4,17%	3,58%	2,61%	2,33%	3,85%	3,55%
Trade	10,24%	9,80%	8,91%	9,21%	13,12%	15,38%	6,70%	7,56%	9,25%	7,80%
Transport and communication	5,34%	5,18%	4,07%	4,02%	5,65%	6,98%	2,53%	2,75%	6,30%	4,64%
Finance and business services	9,76%	11,88%	7,30%	9,15%	11,91%	17,83%	5,62%	6,82%	9,51%	9,93%
Community services	3,82%	4,41%	2,84%	3,22%	3,68%	4,22%	2,16%	3,03%	2,84%	2,40%
General government	7,26%	7,96%	5,40%	6,04%	6,76%	7,94%	4,09%	5,39%	5,41%	4,74%
TOTAL GVA	**R602 270**	**R624 342**	**R193 719**	**R196 083**	**R20 501**	**R19 859**	**R105 648**	**R103 949**	**R25 920**	**R28 599**

Source: Quantec Standardised Regional (2022)

The growth in the local municipalities over the last few years was largely due to the strong performance of the agriculture, trade, finance business services sectors. Manufacturing indicated a contraction in the last 10-years in the district and local municipalities, but remains a large contributor in the economy. Many of these are linked to and service the large mining and manufacturing-based sectors that is present in the town of Secunda. Electricity is an average size industry in the municipalities, any new development would likely greatly increase the contribution of the utilities and construction sectors to the GVA.

Table 4-4: GVA per sector for the Lekwa, Govan Mbeki and Msukaligwa Local Municipalities (2015 constant prices; in R' millions)

Sector	Lekwa Local Municipality			Govan Mbeki Local Municipality			Msukaligwa Local Municipality		
	2010	2020	CAGR	2010	2020	CAGR	2010	2020	CAGR
Agriculture and hunting	R1 782	R2 744	4,41%	R1 360	R2 750	7,29%	R1 566	R2 238	3,64%
Mining and quarrying	R2 744	R2 060	-2,83%	R20 943	R18 699	-1,13%	R6 416	R7 341	1,35%
Manufacturing	R4 563	R2 946	-4,28%	R56 553	R51 572	-0,92%	R6 643	R7 195	0,80%
Electricity, gas and water	R2 123	R999	-7,26%	R1 733	R1 942	1,14%	R1 658	R2 365	3,62%
Construction	R854	R710	-1,83%	R2 754	R2 420	-1,29%	R998	R1 015	0,17%
Trade	R2 690	R3 054	1,28%	R7 079	R7 858	1,05%	R2 398	R2 231	-0,72%
Transport and communication	R1 158	R1 386	1,81%	R2 675	R2 861	0,67%	R1 633	R1 327	-2,05%
Finance and business services	R2 440	R3 540	3,79%	R5 941	R7 092	1,79%	R2 466	R2 840	1,42%
Community services	R755	R838	1,05%	R2 283	R3 153	3,28%	R735	R685	-0,71%

General government	R1 386	R1 577	1,30%	R4 321	R5 597	2,62%	R1 401	R1 356	-0,32%
TOTAL GVA	**R20 500**	**R19 859**	**-0,32%**	**R105 648**	**R103 948**	**-0,16%**	**R25 920**	**R28 598**	**0,99%**

Source: Quantec Standardised Regional (2022)

Over the last ten years, the Compound Average Growth Rate (CAGR) of Lekwa Municipality contracted with 0,32%, whereas Govan Mbeki Local Municipality contracted with 0,16% and Msukaligwa LM increase with 0,99%. The sectors responsible for the contraction of the overall GVA a growth over the 10-year period in Lekwa Local Municipality was mining, manufacturing, utilities and construction. The mining, manufacturing and construction sectors were responsible for the overall contraction of the Govan Mbeki Local Municipality. It is a good indication that the utilities sector indicates a growth of 1,14% in the Govan Mbeki Local Municipality, the proposed UEREF will further increase this sector's performance. The increase in GVA for Msukaligwa LM is due to the strong performance in the electricity, gas and water sector, with a 3,62% growth as well as in the agriculture and hunting sector, which increase with 3,64%.

As evident by Table 4-5 the trade sector employs the most with a 24,5%, 21,7% and 18,1% contribution in 2020 in the Lekwa, Govan Mbeki and Msukaligwa Local Municipality, respectively. The utilities sector employs the least to employment in the municipalities, the proposed UEREF will increase the number of employees in this sector. The local agricultural sector includes limited subsistence (informal) farming, unlike other areas in Mpumalanga, where this practice is more dominant. The presence of this subsistence agricultural activity means that the number of households that are dependent on agricultural activities for income could be slightly greater than the figures presented in Table 4-5. This is due to the fact that the table only indicates those individuals that are formally employed in the agricultural sector.

Table 4-5: Employment structure and contribution of the Lekwa, Govan Mbeki and Msukaligwa Local Municipalities between 2010 and 2020 per economic sector

Sector	Lekwa Local Municipality		Govan Mbeki Local Municipality		Msukaligwa Local Municipality	
	2010	2020	2010	2020	2010	2020
Agriculture and hunting	16,96%	16,07%	4,52%	5,44%	17,05%	16,60%
Mining and quarrying	5,29%	4,96%	20,42%	16,20%	13,36%	15,87%
Manufacturing	8,92%	6,58%	11,48%	9,94%	7,79%	8,38%
Electricity, gas, and water	1,67%	0,76%	0,57%	0,56%	1,31%	1,68%
Construction	4,29%	4,87%	5,14%	5,58%	4,97%	6,74%
Trade	22,50%	24,47%	19,96%	21,70%	20,02%	18,10%
Transport and communication	3,18%	3,81%	2,92%	3,32%	4,22%	3,80%
Finance and business services	11,12%	13,50%	9,57%	9,89%	9,58%	10,00%

Community services	4,92%	4,91%	5,25%	6,22%	3,98%	3,46%
General government	21,15%	20,07%	20,16%	21,15%	17,72%	15,36%
TOTAL EMPLOYMENT	**37 968**	**42 973**	**95 137**	**108 682**	**43 788**	**48 694**

Source: Quantec Standardised Regional (2022)

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 is based on the assumption 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.

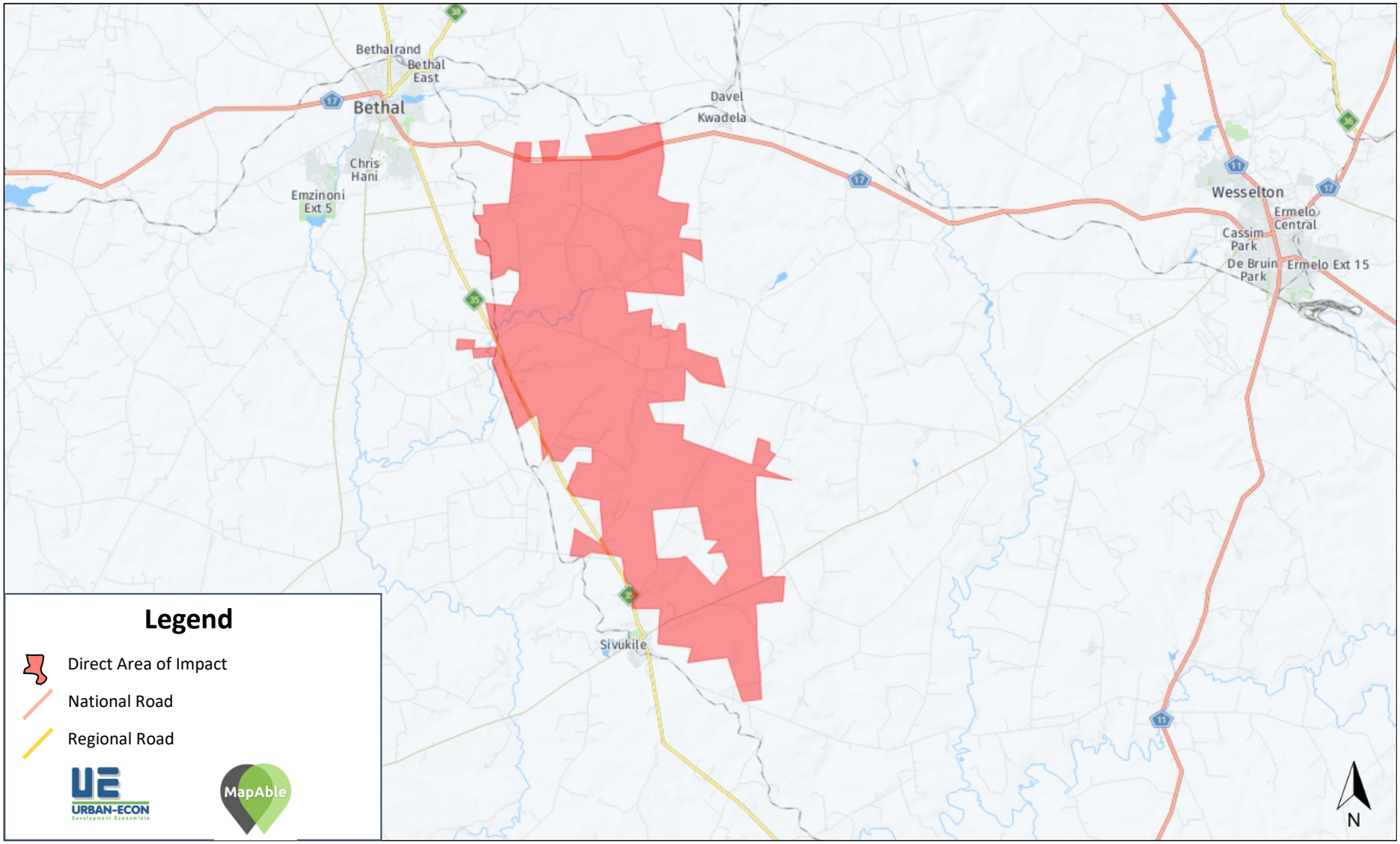
5.2 Direct Area Of Impact

***A detailed layout plan/map is needed to focus on the Direct AOI of the Solar PV Facility. This section will be updated as soon as the plans are made available.**

The direct or immediate socio-economic Area of Impact (AOI) of the proposed 150MW Solar PV Facility 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 farm houses and associated agricultural infrastructure. The site overlaps the R39 road on the south, some sections of the R35 on the western border, and some section of the N17 on the northern border. There are several regional farms roads that falls within the direct AOI.

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.

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.

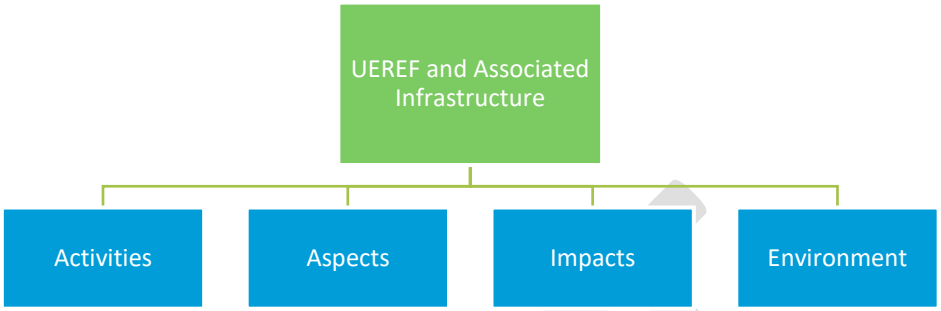
Economic impacts refer to the impact that the construction, operational and maintenance phases of the proposed development will have on the economy, as measured by the following economic indicators:

- **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).

6.4 Identification of Socio-Economic Issues and Potential Impacts

The process of identifying potential impacts is illustrated in Figure 6-1.

Figure 6-1: Process of Identifying Potential Impacts



6.5 Preliminary Impact Assessment

The following sub-section will determine the preliminary impacts that the proposed 150MW Solar PV Facility will have.

6.5.1 Construction Phase Impacts

The following sub-sections indicate the impacts that are likely to occur during the construction phase of the proposed 150MW Solar PV Facility. 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
- Temporary increase in social conflicts associated with the influx of people
- Impacts on daily movement patterns

6.5.2 Operation Phase Impacts

The following sub-section describes the impact that the proposed 150MW Solar PV Facility 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 Solar PV Facility 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

6.5.3 Decommissioning Phase Impacts

Upon the expiry of the facility'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.

6.6 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 UEREF 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 150 MW Solar PV Facility.

6.6.1 Impacts Ensued During Construction

Increased Production

Impact Expenditure associated with the construction of the proposed 150MW Solar PV Facility will impact on the production of the local economy.			
Desktop Sensitivity Analysis of the Site: No sensitivity identified.			
Issue	**Nature of Impact**	**Extent of Impact**	**Magnitude**
The economic impact arising from the initial investment will be felt throughout the economy with windfall effects benefitting related sectors in the economy. The effect is allocated according to direct, indirect and induced impacts, together forming the "multiplier effect"	**Positive** – The initial investment spend on the project will inject significant business sales/ production for the local and regional economy.	The impact will occur at a local, regional and national level. **National (4)**	**High (8)**
Probability		**Highly Probable (4)**	
Duration		**Short Term (1)**	
Description of expected significance of impact The estimated capital expenditure of the project will provide a significant injection into the local and regional economies. The impact will be positive, temporary, short-term, local to national extend, and the significance is medium. **Significance – Medium (52)**			
Gaps in knowledge and recommendations for further study » Information on the exact direct and indirect employment impact on business output / production will be determined during the EIA phase of the impact assessment.			

Impact on GDP

Impact			
Temporary increase in country's GDP due to capital expenditure during construction			
Desktop Sensitivity Analysis of the Site:			
No sensitivity identified.			
Issue	**Nature of Impact**	**Extent of Impact**	**Magnitude**
The primary method of expanding GDP levels is through investment into infrastructure and enterprises that generate goods and services. Investment into the creation of new and improved goods and services, creates heightened levels of value added within the economy. Industries that will experience the largest temporary growth in value added, as a result of this, will include the building and construction, manufacturing and trade and accommodation sectors.	**Positive** – The initial investment spend on the project will create significant value added for the local and regional economy.	The impact will occur at a local, regional and national level. **National (4)**	**High (8)**
Probability		**Highly Probable (4)**	
Duration		**Short Term (1)**	
Description of expected significance of impact The estimated capital expenditure of the project will create significant value added to the local and regional economy. The exact value of that impact will be determined during the EIA phase of the impact assessment. The impact will be positive, short term, have local to national extend and the significance is medium. **Significance – Medium (52)**			
Gaps in knowledge and recommendations for further study » Information on the exact direct and indirect value added will be determined during the EIA phase when the economic modelling is done.			

Employment Creation

Impact			
The construction of the 150MW Solar PV Facility will positively impact the community and beyond by creating a number of job opportunities (albeit temporary).			
Desktop Sensitivity Analysis of the Site:			
No sensitivity identified.			
Issue	**Nature of Impact**	**Extent of Impact**	**Magnitude**
The unemployment rate in the local municipalities are between 26% and 29%. The development of this facility create significant employment opportunities during the construction period.	**Positive** – The construction period of the Solar PV Facility will create a significant number of employment opportunities for the local economy.	The impact will occur at a local, regional and national level. **Regional (3)**	**Moderate (6)**
Probability		**Definite (5)**	
Duration		**Short Term (1)**	
Description of expected significance of impact The number of employment opportunities will be confirmed. **Significance – Medium (50)**			
Gaps in knowledge and recommendations for further study » Information on the exact number of job opportunities will be determined during the EIA phase when the economic modelling is done.			

Positive Impact on Skills Development

Impact Employees will develop and enhance skills thereby increasing experience and knowledge			
Desktop Sensitivity Analysis of the Site: No sensitivity identified.			
Issue	**Nature of Impact**	**Extent of Impact**	**Magnitude**
Skills are imperative for satisfying job requirements and adequately performing tasks that ultimately boost the economy. The construction of the Solar PV Facility requires a variation of skill sets ranging from semi-skilled construction workers to highly skilled engineers.	**Positive** – The transfer of skills to the workers, especially the semi-skilled workers will create a more capable workforce.	The impact will occur at a local, regional level. **Regional (3)**	**Low (4)**
Probability		**Definite (5)**	
Duration		**Permanent (5)**	
Description of expected significance of impact Employees who are new to the market will develop and attain new skills, whilst workers adept in particular skills will sharpen their abilities. In addition, the employees will improve their marketability for future employment and will be perceived positively by future employers. The impact will be long term, the extent will be local to regional and the significance is high. **Significance – Medium (60)**			

Positive impact on household income and improved standard of living

Impact Employed individuals will increase the income of their respective households and thereby experience an improvement in their standard of living			
Desktop Sensitivity Analysis of the Site: No sensitivity identified.			
Issue	**Nature of Impact**	**Extent of Impact**	**Magnitude**
The employment creation during the construction period will temporarily increase affected households' income	**Positive** – The increased income earned during the construction for workers will improve their standard of living as well as those of their households.	The impact will occur at a local and regional level and National. **Local (2)**	**Moderate (6)**
Probability		**Highly Probable (4)**	
Duration		**Short Term (1)**	
Description of expected significance of impact Employed individuals will increase the income of their respective households and therefore improve their standard of living during the construction period. In the context of the proposed power plant, workers employed in the construction as well as their households can expect an improvement in their quality of life and standard of living. The impact will be short term, local in extent and of medium significance. **Significance – Medium (36)**			

Temporary Increase in Government Revenue

Impact 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.			
Desktop Sensitivity Analysis of the Site: No sensitivity identified.			
Issue	**Nature of Impact**	**Extent of Impact**	**Magnitude**
Government earnings will be distributed by national government to cover public spending which includes amongst others the provision and maintenance of transport infrastructure, health, and education services as well as other public goods.	**Positive** – The increased income earned during the construction for workers will generate revenue for government.	The impact will occur at a local and regional level and National. **Local (2)**	**Moderate (6)**
Probability		**Highly Probable (4)**	
Duration		**Short Term (1)**	
Description of expected significance of impact The impact will be short term, local in extent and of medium significance. **Significance – Medium (36)**			

Negative Changes in Sense of Place

Impact Sense of place impacts (visual, noise and dust).			
Desktop Sensitivity Analysis of the Site: No sensitivity identified.			
Issue	**Nature of Impact**	**Extent of Impact**	**Magnitude**
Sense of place impacts in terms of visual change of the area, increase in noise and dust levels due to construction activities.	**Negative** – The impact will negatively impact sensitive receptors and could cause disruptions for neighbouring properties.	The impact will occur at a local level. **Local (1)**	**Moderate (6)**
Probability		**Highly Probable (4)**	
Duration		**Short Term (1)**	
Description of expected significance of impact Impacts associated with construction related activities include visual, noise and dust to adjacent properties. Site clearing activities increase the risk of dust and noise being generated, which can in turn negatively impact on adjacent properties. The impact is likely to be negative, local in extent, short-term, and of medium significance. **Significance – Medium (32)**			

Demographic shift due to influx of migrant labour

Impact An impact on the demographics of the area as a result of in-migration in response to job opportunities will occur			
Desktop Sensitivity Analysis of the Site: No sensitivity identified.			
Issue	**Nature of Impact**	**Extent of Impact**	**Magnitude**
Increased pressure on infrastructure and basic services, and social conflicts during construction as a result of in-migration of people.	**Negative** – The in-migration of job seekers to the area could result in increased pressure being placed on infrastructure and basic services, and a rise in social conflicts.	The impact will occur at a local and regional level. **Local (1)**	**Low (4)**
Probability		**Improbable (2)**	
Duration		**Short Term (1)**	
Description of expected significance of impact The in-migration of people to the area as either non-local workforce and / or jobseekers could result in increased pressure being placed on infrastructure and basic services on the local population (rise in social conflicts). An influx of people into the area, could lead to a temporary increase in crime levels, cause social disruption, and put pressure on basic services. An influx of people looking for economic opportunities could result in pressure on the local population such as rise in social conflicts and change in social dynamics, increase in HIV, pregnancies and drug abuse. Adverse impacts could occur if a large in-migrant workforce, which is culturally different from the local population, is brought in during construction. The impact is likely to be negative, local in extent, short-term, and of low significance due to the number of jobs expected to be created, and the proportion of which would accrue to the non-local workforce. **Significance – Low (12)**			

Impacts on daily movement patterns

Impact Impacts on daily living and movement patterns.			
Desktop Sensitivity Analysis of the Site: No sensitivity identified.			
Issue	**Nature of Impact**	**Extent of Impact**	**Magnitude**
Temporary increase in traffic disruptions and movement patterns during the construction period.	**Negative** – An increase in traffic due to construction vehicles and heavy vehicles could create short-term disruptions and safety hazards for current road users.	The impact will occur at a local level. **Local (2)**	**Moderate (6)**
Probability		**Highly Probable (4)**	
Duration		**Short Term (1)**	
Description of expected significance of impact Increased traffic due to construction vehicles and heavy vehicles could cause disruptions to road users and increase safety hazards. The use of local roads and transport systems may cause road deterioration and congestion. The impact is likely to be negative, local in extent, short-term, and of medium significance. **Significance – Medium (36)**			
Gaps in knowledge and recommendations for further study » Number of vehicle trips anticipated during construction.			

6.6.2 Impacts Ensued During Operations

Increased Production

Impact Expenditure associated with the operation of the proposed Solar PV Facility will have a positive impact on production			
Desktop Sensitivity Analysis of the Site: No sensitivity identified.			
Issue	**Nature of Impact**	**Extent of Impact**	**Magnitude**
Once operational, it is estimated that the proposed Solar PV Facility will stimulate production.	**Positive** – The operational spend on the project will inject business sales/ production for the local and regional economy.	The impact will occur at a local, regional and national level. **Local (2)**	**Moderate (6)**
Probability		**Highly Probable (4)**	
Duration		**Long Term (4)**	
Description of expected significance of impact The operational expenditure will provide an injection into the local and regional economies. The facility will have to acquire inputs from a variety of sectors such as trade and accommodation, transport and storage, and government services. **Significance – Medium (48)**			
Gaps in knowledge and recommendations for further study » Information on the exact direct and indirect employment impact on business output / production will be determined during the EIA phase of the impact assessment.			

Impact on GDP

Impact Positive impact on GDP due to operating expenditure during operations			
Desktop Sensitivity Analysis of the Site: No sensitivity identified.			
Issue	**Nature of Impact**	**Extent of Impact**	**Magnitude**
The primary method of expanding GDP levels is through investment into infrastructure and enterprises that generate goods and services. Industries that will experience the largest growth in value added, as a result of this, will include the transport, storage and manufacturing sectors.	**Positive** – The operational spend on the project will create significant value added for the local and regional economy.	The impact will occur at a local and regional level and national. **Local (2)**	**Moderate (6)**
Probability		**Highly Probable (4)**	
Duration		**Long Term (4)**	
Description of expected significance of impact The operational expenditure will create value added to the local and regional economy. The exact value of that impact will be determined during the EIA phase of the impact assessment. The impact will be positive, long term, local to national in extent and of medium significance. **Significance – Medium (48)**			
Gaps in knowledge and recommendations for further study » Information on the exact direct and indirect value added will be determined during the EIA phase when the economic modelling is done.			

Employment Creation

Impact The Solar PV Facility will create additional employment due to maintenance of the solar panels.			
Desktop Sensitivity Analysis of the Site: No sensitivity identified.			
Issue	**Nature of Impact**	**Extent of Impact**	**Magnitude**
The operation of the Solar PV Facility will create employment opportunities during the operational period.	**Positive** – The operations of the facility will create a number of employment opportunities for the local economy.	The impact will occur at a local, regional, and national level. **Local (1)**	**Minor (2)**
Probability		**Probable (3)**	
Duration		**Long Term (4)**	
Description of expected significance of impact The operation of this facility will create minor employment opportunities during the operational period. Only maintenance will be needed, as the solar panels operate independently. **Significance – Low (21)**			
Gaps in knowledge and recommendations for further study » Information on the exact number of job opportunities will be determined during the EIA phase when the economic modelling is done.			

Positive impact on household income and improved standard of living

Impact Employed individuals will increase the income of their respective households and thereby experience an improvement in their standard of living			
Desktop Sensitivity Analysis of the Site: No sensitivity identified.			
Issue	**Nature of Impact**	**Extent of Impact**	**Magnitude**
The employment creation during the operational period will permanently increase affected households' income	**Positive** – The increased income earned during the operations for workers will improve their standard of living as well as those of their households.	The impact will occur at a local and regional level and National. **Local (2)**	**Moderate (6)**
Probability		**Highly Probable (4)**	
Duration		**Long Term (4)**	
Description of expected significance of impact Employed individuals will increase the income of their respective households and therefore improve their standard of living during the operational period. In the context of the proposed facility, workers employed in the operations as well as their households can expect an improvement in their quality of life and standard of living. The impact will be long term, local in extent and of medium significance. **Significance – Medium (36)**			

Increase in Government Revenue

Impact The investment in the facility will generate revenue for the government during the operational period through a combination of personal income tax, VAT, companies' tax etc.			
Desktop Sensitivity Analysis of the Site: No sensitivity identified.			
Issue	**Nature of Impact**	**Extent of Impact**	**Magnitude**
Government earnings will be distributed by national government to cover public spending which includes amongst others the provision and maintenance of transport infrastructure, health, and education services as well as other public goods.	**Positive** – The increased income earned during the operations for workers will generate revenue for government.	The impact will occur at a local and regional level and National. **Local (2)**	**Moderate (6)**
Probability		**Highly Probable (4)**	
Duration		**Long Term (4)**	
Description of expected significance of impact The impact will be long term, local in extent and of medium significance. **Significance – Medium (36)**			

Sustainable rental revenue for land owners

Impact Increase in revenue due to rental paid for land owners where the solar panels will be located			
Desktop Sensitivity Analysis of the Site: No sensitivity identified.			
Issue	**Nature of Impact**	**Extent of Impact**	**Magnitude**
It is anticipated that farms where the solar panels will be located on will enter into a rental agreement with the developer. The owners will likely thus receive rental revenue as a result of hosting the panels on their property.	**Positive** – The increased income earned	The impact will occur at a local and regional level and National. **Local (2)**	**Moderate (6)**
Probability		**Highly Probable (4)**	
Duration		**Long Term (4)**	
Description of expected significance of impact The impact will be long term, local in extent and of medium significance. **Significance – Medium (36)**			
Gaps in knowledge and recommendations for further study » Information on the amount to be paid to land owners could change the significance of the impact.			

Improvement in Energy Sector Generation

Impact Improved energy security and energy sector will result due to the development of the 150MW Solar PV Facility			
Desktop Sensitivity Analysis of the Site: No sensitivity identified.			
Issue	**Nature of Impact**	**Extent of Impact**	**Magnitude**
The facility will provide the important national service of providing new electricity capacity into the national grid. Strategically, the proposed project will assist in improving electricity security and reducing transmission losses in the national grid.	**Positive** – The operational phase of the facility will improve energy and grid security.	The impact will occur at a local and regional and national level. **National (5)**	**Moderate (6)**
Probability		**Highly Probable (4)**	
Duration		**Long Term (4)**	
Description of expected significance of impact The ability and operational flexibility are to be ramped up or down to suit the system demand on an hourly or daily basis, will additionally increase efficiency. The impact will be positive, long term, local to national extend and of high significance. **Significance – High (60)**			

Visual and Sense of Place Impacts

Impact Visual and sense of place impacts.			
Desktop Sensitivity Analysis of the Site: No sensitivity identified.			
Issue	**Nature of Impact**	**Extent of Impact**	**Magnitude**
Sense of place impacts from a social perspective associated with the operation phase of the facility (solar panels)	**Negative** – The project could alter the areas sense of place which could negatively impact on sensitive receptors.	The impact will occur at a local level. **Local (2)**	**Moderate (6)**
Probability		**Definite (5)**	
Duration		**Long Term (4)**	
Description of expected significance of impact The presence of the solar panels could impact the "sense of place" for the local community. The impact is likely to be negative, local in extent, long-term, and of medium significance considering it is located within an agricultural dominated area. **Significance – High (60)**			

Negative Impact on agricultural operations

Impact Loss of agricultural space			
Desktop Sensitivity Analysis of the Site: No sensitivity identified.			
Issue	**Nature of Impact**	**Extent of Impact**	**Magnitude**
The solar panels will take up a certain amount of spcae, this will result in loss of agricultural land.	**Negative** – Loss of arable land to generate income	The impact will occur at a local level. **Local (2)**	**Low (4)**
Probability		**Definite (5)**	
Duration		**Long Term (4)**	
Description of expected significance of impact The impact is likely to be negative, local in extent, long-term, and of medium significance. **Significance – Medium (50)**			
Gaps in knowledge and recommendations for further study » Information on the number of solar panels will determine to approximate arable land that is lost.			

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 150MW Solar PV Facility 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 social impacts identified for the detailed design and construction phase

Impact	Status	Significance
Impact on Production	Positive	Medium (52)
Impact on GDP	Positive	Medium (52)
Impact on Employment Creation	Positive	Medium (50)
Skills Development	Positive	Medium (60)
Household Income and Standard of Living	Positive	Medium (36)
Temporary increase in government revenue	Positive	Medium (36)
Change in sense of place	Negative	Medium (32)
Influx of people	Negative	Low (12)
Daily movement patterns	Negative	Medium (36)

Table 7-2: Summary of potential social impacts identified for the operational phase

Impact	Status	Significance
Impact on Production	Positive	Medium (48)
Impact on GDP	Positive	Medium (48)
Employment Creation	Positive	Low (21)
Household Income and Standard of Living	Positive	Medium (36)
Increase in government revenue	Positive	Medium (36)
Rental revenue for land owners	Positive	Medium (36)
Improvement in Energy Sector Generation	Positive	High (60)
Visual and Sense of Place Impacts	Negative	High (60)
Impact on agricultural operations	Negative	Medium (50)

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 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 150MW Solar PV Facility.

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.

Appendix A: Impact Methodology

In terms of **Appendix 6 of 2014 EIA Regulations**, as amended;

» A specialist report prepared in terms of these Regulations must contain—

details of—

(i) the specialist who prepared the report; and

(ii) the expertise of that specialist to compile a specialist report including a curriculum vitae;

» a declaration that the specialist is independent in a form as may be specified by the competent authority;

» an indication of the scope of, and the purpose for which, the report was prepared;

» the date and season of the site investigation and the relevance of the season to the outcome of the assessment;

» a description of the methodology adopted in preparing the report or carrying out the specialised process;

» the specific identified sensitivity of the site related to the activity and its associated structures and infrastructure;

» an identification of any areas to be avoided, including buffers;

» a map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;

» a description of any assumptions made and any uncertainties or gaps in knowledge;

» a description of the findings and potential implications of such findings on the impact of the proposed activity, including identified alternatives on the environment;

» any mitigation measures for inclusion in the EMPr;

» any conditions for inclusion in the environmental authorisation;

» any monitoring requirements for inclusion in the EMPr or environmental authorisation;

» a reasoned opinion—

(i) as to whether the proposed activity or portions thereof should be authorised; and

(ii) if the opinion is that the proposed activity or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan;

» a description of any consultation process that was undertaken during the course of preparing the specialist report;

» a summary and copies of any comments received during any consultation process and where applicable all responses thereto; and

» any other information requested by the competent authority.

Assessment of Impacts:

Direct, indirect and cumulative impacts associated with the projects must be assessed in terms of the following criteria:

- The **nature**, which shall include a description of what causes the effect, what will be affected and how it will be affected.
- The **extent**, wherein it will be indicated whether the impact will be local (limited to the immediate area or site of development) or regional, and a value between 1 and 5 will be assigned as appropriate (with 1 being low and 5 being high):
- The **duration**, wherein it will be indicated whether:
    - the lifetime of the impact will be of a very short duration (0–1 years) – assigned a score of 1;
    - the lifetime of the impact will be of a short duration (2-5 years) - assigned a score of 2;
    - medium-term (5–15 years) – assigned a score of 3;
    - long term (> 15 years) - assigned a score of 4; or
    - permanent - assigned a score of 5;
- The **magnitude**, quantified on a scale from 0-10, where 0 is small and will have no effect on the environment, 2 is minor and will not result in an impact on processes, 4 is low and will cause a slight impact on processes, 6 is moderate and will result in processes continuing but in a modified way, 8 is high (processes are altered to the extent that they temporarily cease), and 10 is very high and results in complete destruction of patterns and permanent cessation of processes.
- The **probability** *of occurrence*, which shall describe the likelihood of the impact actually occurring. Probability will be estimated on a scale of 1–5, where 1 is very improbable (probably will not happen), 2 is improbable (some possibility, but low likelihood), 3 is probable (distinct possibility), 4 is highly probable (most likely) and 5 is definite (impact will occur regardless of any prevention measures).
- the **significance**, which shall be determined through a synthesis of the characteristics described above and can be assessed as low, medium or high; and
- the **status**, which will be described as either positive, negative or neutral.
- the degree to which the impact can be reversed.
- the degree to which the impact may cause irreplaceable loss of resources.
- the *degree* to which the impact can be *mitigated.*

The **significance** is calculated by combining the criteria in the following formula:

S=(E+D+M)P

S = Significance weighting

E = Extent

D = Duration

M = Magnitude

P = Probability

The **significance weightings** for each potential impact are as follows:

- < 30 points: Low (i.e. where this impact would not have a direct influence on the decision to develop in the area),
- 30-60 points: Medium (i.e. where the impact could influence the decision to develop in the area unless it is effectively mitigated),
- > 60 points: High (i.e. where the impact must have an influence on the decision process to develop in the area).

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