



SOCIAL SCREENING ASSESSEMENT

**PROPOSED DEVELOPMENT OF THE KHAUTA SOLAR
PHOTOVOLTAIC (PV) CLUSTER NEAR WELKOM, FREE
STATE PROVINCE**

November 2021

PREPARED FOR:



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1 SECTION 1: INTRODUCTION

1.1 INTRODUCTION

Enviroworks was appointed by WKN-Windcurrent (the Proponent) to undertake a Social Screening Assessment (SSA) for the proposed development of Photovoltaic (PV) facilities and their associated electrical grid infrastructure, on the outskirts of Welkom, Free State Province.

1.2 TERMS OF REFERENCE

The key aim of this Social Screening Assessment (SSA) is to identify, from a social impact perspective, potential fatal flaws ('red-flags'), No-Go Areas and/or major sensitivities in regard to the proposed PV developments. Furthermore, the SSA aims to assess the different route alternatives for the electrical grid infrastructure in order to advise on the preferred alternative. The Terms of Reference for this SSA require the following:

Identify any fatal flaws, No-Go Areas and/or major sensitivities for the following:

- Three 100MW PV Facilities
- Two line route options for the 132kV line (150m corridor to be assessed on either side of the proposed line)
 - o In addition, the two line route options must be compared and recommendation made as to the preferred route alternative.
- Two 19.9MW PV Facilities
- Two line route options for the 44kV line (150m corridor to be assessed on either side of the proposed line).
 - o In addition, the two line route options must be compared and recommendation made as to the preferred route alternative.

1.3 APPROACH TO STUDY

This SSA was undertaken in the form of a desktop study. The identification of potential social issues associated with the proposed developments has been based on:

1. Review of aerial imagery, to identify features such as human settlements, recreational areas and other points of interest;
2. Review of National, Provincial and Municipal planning documents; and,
3. Review of similar projects.

1.3.1 Definitions of social impacts

Social impacts can be defined as consequences (positive and negative) to human populations of any public or private actions (including policies, programmes, plans and/or projects) that alter the ways in which people conduct everyday life. These impacts are felt at various levels, including:

- 1) Individual level;
- 2) Family or household level;
- 3) Community;
- 4) Organisation;
- 5) Society level.

1.3.2 Timing of Social Impacts

In terms of timing, all projects and policies go through a series of phases, usually starting with initial planning, followed by construction, operation, and finally decommissioning. The activities, type of activities and duration of the social impacts associated with each of these phases are likely to differ.

1.4 ASSUMPTIONS AND LIMITATIONS

1.4.1 Assumptions

- It is assumed that the development site represents a technically suitable site for the development of PV facilities.
- It is assumed that all information provided by the Proponent was accurate and true.
- Legislation and policies reflect societal norms and values. The legislative and policy context therefore plays an important role in identifying and assessing the potential social impacts associated with a proposed development. In this regard a key component of the Social Impact Assessment process is to assess the proposed development in terms of its fit with key planning and policy documents. As such, should the findings of the study indicate that the proposed development, in its current format, does not conform to the spatial principles and guidelines contained in the relevant legislation and planning documents, and there are no significant or unique opportunities created by the development, the development cannot be supported.

1.4.2 Limitations

- This SSA has been conducted purely as a 'desktop study', with time and resource constraints.
- No site inspection was conducted as part of the undertaking of this assessment.
- No Organs of State, Stakeholders or potential Interested and Affected Parties were consulted as part of undertaking the assessment.

- Where population dynamics have been investigated this was conducted primarily using data from the 2011 Census, which is the most recent source of official statistics. While the data does provide useful information regarding the socio-economic situation of the area concerned, it needs to be noted that the data is now somewhat outdated and actual population demographics may differ.
- While this study did attempt to make use of as wide a range of data sources as possible, there was a limitation due to time and budgetary constraints.

1.5 SPECIALIST DETAILS

This report and appendixes was compiled by Michael Leach of Enviroworks.

Table 1: Details of the Specialist

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DECLARATION OF INDEPENDENCE

I, Michael Leach, hereby confirm that as the specialist consultants responsible for undertaking this study and preparing the report, am independent and do not have vested or financial interests in the proposed project being either approved or rejected.

Michael Leach



1.6 PROJECT LOCATION

The proposed development is situated outside the urban edge of Welkom, approximately 2km north-east of Riebeeckstad, in the Matjhabeng Local Municipality, Free State Province. The proposed electrical connection routes pass through Riebeeckstad and Thabong.

1.7 NEED FOR PROJECT

The proposed amendment will result in several needs being met. Firstly, the development will generate electricity from a renewable resource, i.e. solar, assisting in addressing South Africa's electricity shortage. Knock-on effects will include job creation.

2 SECTION 2: POLICY AND PLANNING ENVIRONMENT

2.1 INTRODUCTION

Section 2 of this socio-economic report provides an overview of the most significant policy documents of relevance to the proposed mining right amendment. The key documents reviewed included the following:

- The National Development Plan (2030)
- Free State Provincial Spatial Development Plan 2014
- Lejweleputswa District Municipality: Integrated Development Plan 2017-2022
- Matjhabeng Local Municipality: Integrated Development Plan for The Financial Year 2017 – 2022.
- Draft Environmental Impact Assessment Report - The Proposed Development of 75MW Photovoltaic Solar Farm and Associated Infrastructure, Welkom, Matjhabeng Local Municipality (2013)

2.2 SUMMARY OF REVIEWED DOCUMENTS

2.2.1 The National Development Plan (2030)

The National Development Plan (NDP) contains a plan aimed at eliminating poverty and reducing inequality by 2030 making this one of the guiding objectives of the NDP over the next 20 years. The NDP aims to address poverty and exclusion on the while simultaneously attempting to nurture economic growth by creating a virtuous cycle of expanding opportunities, building capabilities, poverty reduction, involving communities in their own development, all leading to rising living standards. The NDP identifies 9 key challenges and associated remedial plans. While all nine challenges/ plans are envisaged as part of an integrated whole, the highest priorities are regarded

employment creation and improving the quality of national education. Expansion and acceleration of development which would result in increased employment opportunity is identified as a key intervention strategy. It is specifically noted in the NDP that *“South Africa must leverage its solar resource and regional hydropower opportunities as competitive advantages, in parallel with the responsible exploitation of fossil fuels and minerals”*. This will require investment into the necessary skills, technology and institutional capacity, in order to support a complete renewable energy sector.

2.2.2 Free State Provincial Spatial Development Framework 2014

The Free State Provincial Spatial Development Framework (PSDF) is a provincial spatial plan and strategic planning policy which addresses and adheres to all relevant policies and legislation. The PSDF aims to address the key challenges facing the Free State of needing to implement a ‘developmental state’ while ensuring global obligations to social, economic and environmental sustainability are achieved. The Free State PSDF supplements the Free State Growth Development Strategy (FSGDS). Together they provide a crucial tool for guiding the use of the province’s resources in a way that ensures the province’s development needs and priorities are met while remaining sustainable.

Agriculture is a key economic driver within the Free State and areas of high agricultural potential need to be protected from non-agricultural activities and used appropriately. Where agricultural land is to be used for other activities, such as mining, the activities must result in meaningful benefit. With regards to industrial activities, the PSDF aims to ensure that any use of the province’s resources results in meaningful and lasting benefits for the people of the province and the environment.

Renewable energy is noted as a key focus in the PSDF, with the goal of renewable energy sources, including solar, comprising 25% of the province’s energy generation capacity by 2020. The development of renewable energy is to be promoted. The Xhariep region is noted as an ideal location for solar energy developments and is considered to be an ideal location for the development of concentrated solar power.

Renewable energy installations is noted as one of the developments, that while necessary for economic growth, generally have a detrimental impact on the environment which, in turn, often result in a negative impact on human-wellbeing and on the tourism. Promoting sustainable tourism forms part of the PSDF. Within Tourism Scenic Corridors, efficient tourism should be encouraged and environmentally disruptive land-uses within these areas need be considered with caution.

2.2.3 Lejweleputswa District Municipality: Integrated Development Plan 2017-2022

One of the strategic objectives noted in the Lejweleputswa District Municipality Integrated Development Plan (IDP) is the reduction of greenhouse emissions in the district, through the

development of solar power plant. The solar energy projects at Dealesville and Boshof have been identified as projects to be expanded into a solar energy hub for the southwestern part of the Lejweleputswa district.

The district has seen retrenchments in the mining industry, particularly affecting the mining towns of Virginia, Welkom, Odendaalsrus and Allanridge.

Welkom is an economic node within the district and is expected to remain so despite a decline in the gold mining industry of the Welkom area. Welkom serves as a main service centre within the district, providing specialised services including a hospital, institutions, regional government representation, regional banking institutions, specialised commercial and industries. Tourism in Welkom includes mining tourism and several annual events in Welkom.

2.2.4 Matjhabeng Local Municipality: Integrated Development Plan for The Financial Year 2017 – 2022.

It is noted that the Matjhabeng area has a well-established bulk electrical network. Eskom serves the mines and townships in the municipal area and thus there is sufficient bulk infrastructure available to serve the whole area. The municipality however faces the challenge of aging electrical infrastructure. Several proposed projects for the upgrading of electrical infrastructure are included in the IDP. It is noted that Matjhabeng Municipality are endeavoring to reduce their carbon footprint and move towards green economy.

2.2.5 Draft Environmental Impact Assessment Report - The Proposed Development of 75MW Photovoltaic Solar Farm and Associated Infrastructure, on the Remaining Extent of the Farm Uitkyk No. 509, Portion 1 of the Farm Helderwater No. 494, Portion 2 of the Farm Helderwater No. 494 and Portion 1 of the Farm Doornpan No. 426, Ventersburg Rd, Welkom, Matjhabeng Local Municipality, Free State Province. (2013)

Socio-economic impacts were found to represent the most significant impacts and were rated between medium to high. Several key impacts such as job creation, long-term economic stability and earning, community empowerment and skills development were all impacts of a positive nature. The benefit of the proposed development was found to be strengthened by the existing state of economic disrepair in the local community, in which high unemployment, access to water and food, and services were noted as some of the key challenges faced within the municipality.

3 SECTION 3: OVERVIEW OF STUDY AREA

3.1 INTRODUCTION

The proposed development is situated within the Matjhabeng Local Municipality, within the Lejweleputswa District Municipality, Free State Province.

Section 3 of this report provides a brief overview of the study area and covers:

- The relevant administrative context;
- The municipal-level socio-economic context.

3.2 PROVINCIAL OVERVIEW

3.2.1 Free State Province

The Free State Province (FSP) is the third largest province in the country and covers approximately 129 825km². Bordered by the Orange River to the south and the Vaal River to the north, the province's landscape varies greatly from Kalahari country and Highveld Grassland to mountain ranges to farm land and wilderness areas. Located at the centre of South Africa, the Free State is bordered by six other provinces, namely North West, Gauteng, Mpumalanga, Eastern Cape and Northern Cape. Lesotho borders the province on its south-eastern side. Major towns within the province include Bloemfontein, the province's capital, as well as Welkom, Sasolburg, Kroonstad and Parys.

The province is divided into the Mangaung Metropolitan Municipality and four District Municipalities, namely Fezile Dabi, Lejweleputswa, Thabo Mofutsanyana and Xhariep. These District Municipalities are then further sub-divided into nineteen Local Municipalities (Free State PSDF, 2014).

With rich soils and good climatic conditions the Free State is conducive to agricultural activities (Free State PGDS, 2014). Known as the 'bread basket' of South Africa, the Free State is strongly rural and is one of South Africa's major agricultural producers, with 90% of the province's land being used for crop production. Agriculture, manufacturing and mining are the three dominant economic drivers. The province produces approximately 34% of the total maize production of South Africa, 53% of sorghum, 37% of wheat, 30% of groundnuts, 33% of potatoes, 18% of red meat, and 15% of wool. The mining industry is a major employer, with the province being the world's fifth largest producer of gold. Of note is the province's chemical industry, with the company, Sasol, producing a significant amount of synthetic-fuels (Municipalities of South Africa, 2018).



Figure 1: Map showing the Free State Province within South Africa

Despite its size the FSP has the second smallest population and population density, with 2 759 644 people, making up 5.1% of the total population for the country. The population growth rate between 2001 and 2016 was 0.14% per annum, considerably lower than the National growth rate of 1.44% per annum. The ratio of males to females is fairly equal with approximately 49% (1 332 002) being male and 51% (1 427 642) being female. In respect to age structure, 29.2% of the population is under 15 years of age, while 65.5% is between 15 and 64 years with 5.3% 65 or older (Stats SA, 2011). The population pyramid of the province is illustrated in **Figure 2** below.

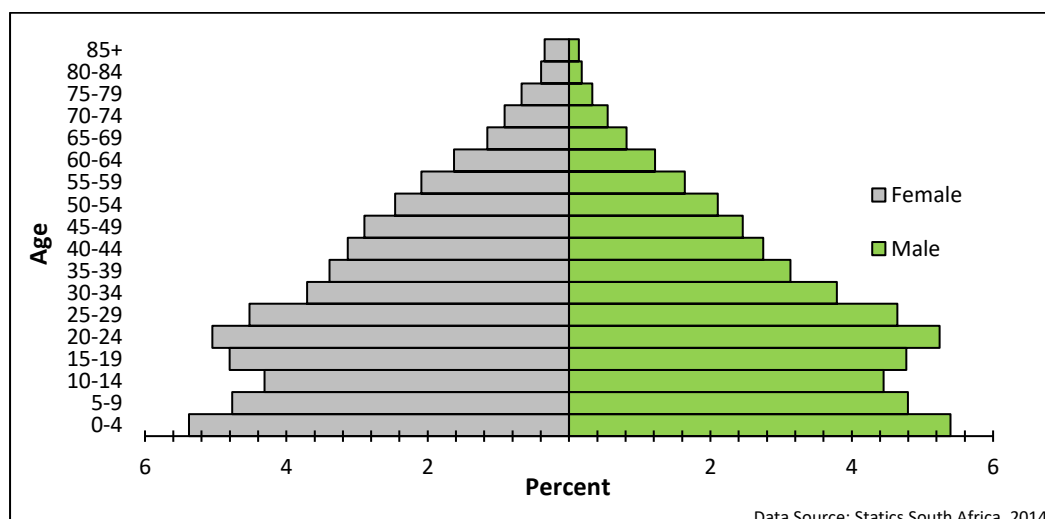


Figure 2: Population pyramid of the Free State Province.

With regards to population groups, the majority of the population is black African, 87.61%. 8.71% are white, 3.05% are coloured, 0.38% are Indian/Asian and 0.25% are classified as other. The majority of the population speak Sotho as their first language, 64.20%. Afrikaans is spoken by 12.72%, 7.52%

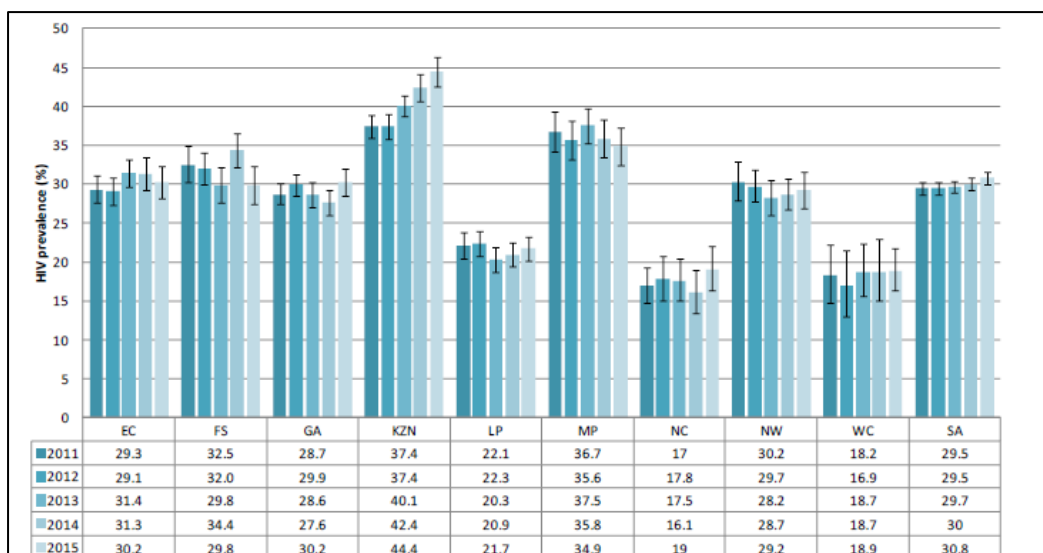
speak isiXhosa, 5.24% speak Setswana, 4.41% speak isiZulu and 2.94% speak English. Various other languages make up the remaining 2.97% (Census 2011).

The dependency ratio indicates the burden placed on the population of working age, between 15 and 64 years, who support children under 15 years and people over 65 years. The dependency ratio for the FSP is 52.9. The unemployment rate in the FSP has decreased from 41.3% to 32.6%. Despite the decrease the unemployment rate is still high and presents a major challenge (Free State PSDF, 2014).

According to the 2011 Census, there were 823 316 households within the FSP, with an average household size of 3.3. The average household income was R75 315 per annum. 81.1% of households lived in Formal Dwellings, while 15.7% lived in Informal Dwellings, 2.4% in Traditional Dwellings and 0.9% in Other. Of the households, 51.64% were owned and fully-paid off, 9.03% were owned but not yet paid off and 19.93% were rented. With regards to household services, 67.7% had either a flush or chemical toilet and 89.8% had access to piped water within their dwelling. 89.9% of households used electricity for lighting and 71% had their refuse removed weekly (Stats SA, 2014).

Education levels in the FSP have improved significantly, with functional literacy increasing from 64% in 1994 to approximately 80% in 2010. Despite improvements, only 23% of the population have a Matric qualification. (Free State PSDF, 2014). For persons between the ages of 5-24 73.1% were attending an educational institution.

With regards to health matters, the Free State has the lowest predicted average life expectancy at birth, with males living to an average of 55 years and females 61.5 years (Stats SA, 2018). The prevalence of HIV is 19.5% of the general population. HIV prevalence showed a decrease between 2011 and 2015.



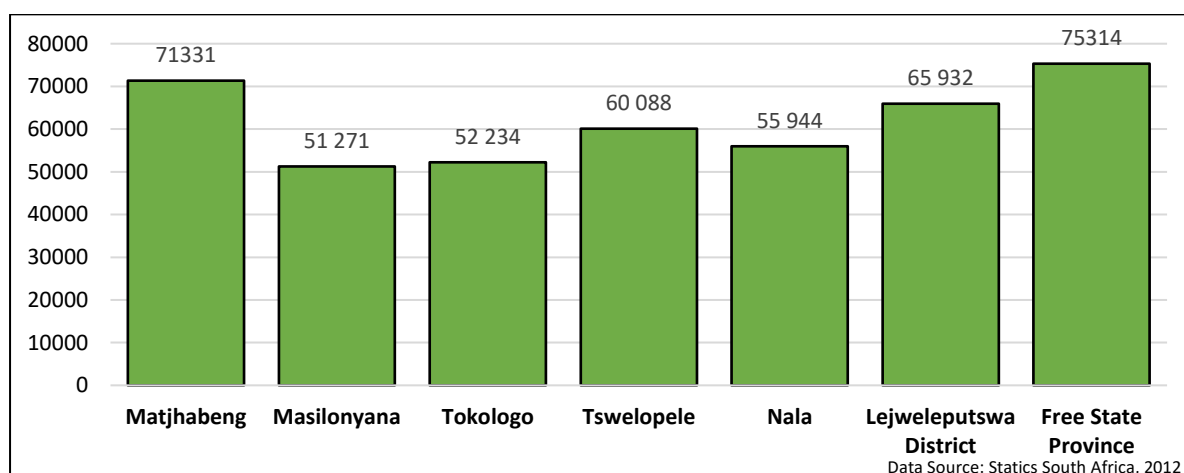
Data Source: Antenatal Sentinel HIV and Syphilis Survey, 2015

Figure 3: HIV prevalence by province - 2011 - 2015.

3.3 MUNICIPAL-LEVEL OVERVIEW

The proposed development is situated in the Matjhabeng Local Municipality, within the Lejweleputswa District Municipality.

Household income is an important factor indicating the welfare of the region. Households with either no income or a low income are classified as falling within the poverty level. Of the four local municipalities Matjhabeng Local Municipality has the highest average annual household income when compared to the other municipalities within the Lejweleputswa District Municipality, although it was slightly below the average for the Province, as shown in **Figure 4**.



Data Source: Statics South Africa, 2012

Figure 4: Average annual household income per household (R) for local municipalities within the Lejweleputswa District, the Lejweleputswa District Municipality and the Free State Province.

Education Levels

Education is a crucial factor in creating widespread, meaningful employment opportunities and strengthening the municipality’s economy. Improving levels of education is critical for economic

development and improving standards of living. The Matjhabeng Municipality generally had better higher levels than those of the rest of the District and the Province.

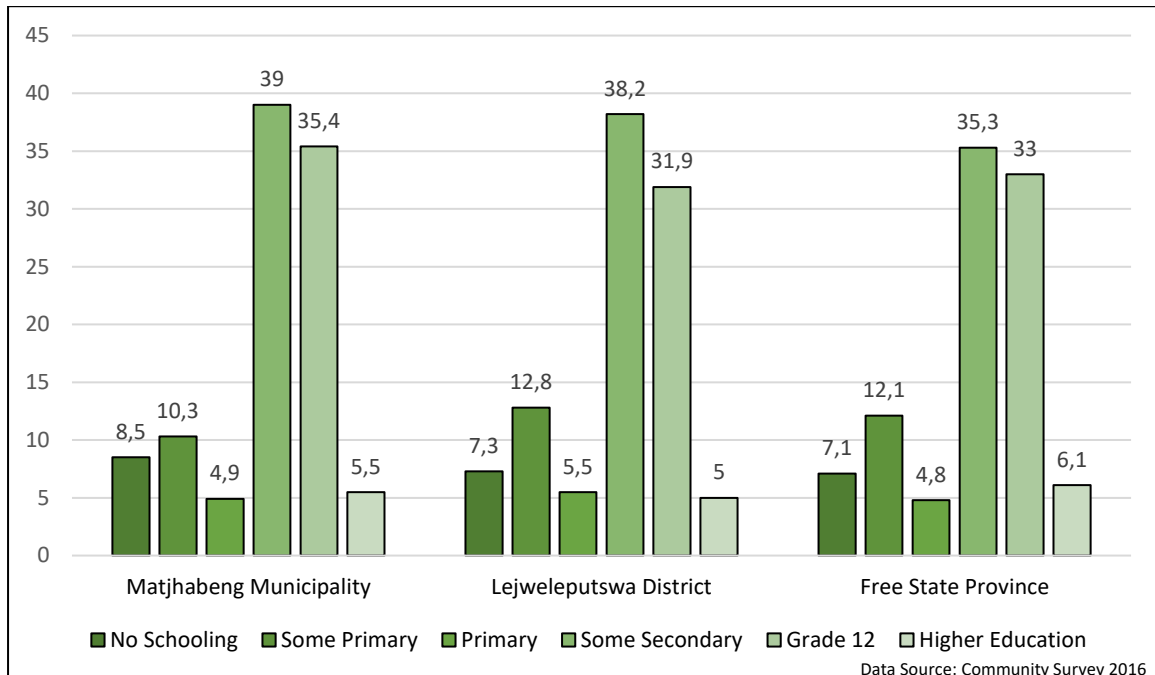


Figure 5: Level of education achieved for those over 20 years of age.

Unemployment

Members of the population falling within the 15-64 years age bracket are classified as being of working age. ‘Economically active’ persons are defined as those that are either currently employed or actively seeking employment. Matjhabeng Local Municipality had a slightly higher unemployment rate, 21.2%, than both District Municipality, 19.9% and the Province, 17.5% (Statistic South Africa, 2011). Please note that these figures are based on the 2011 Census and current figures are likely to differ, particularly considering the impact of the COVID 19 Pandemic.

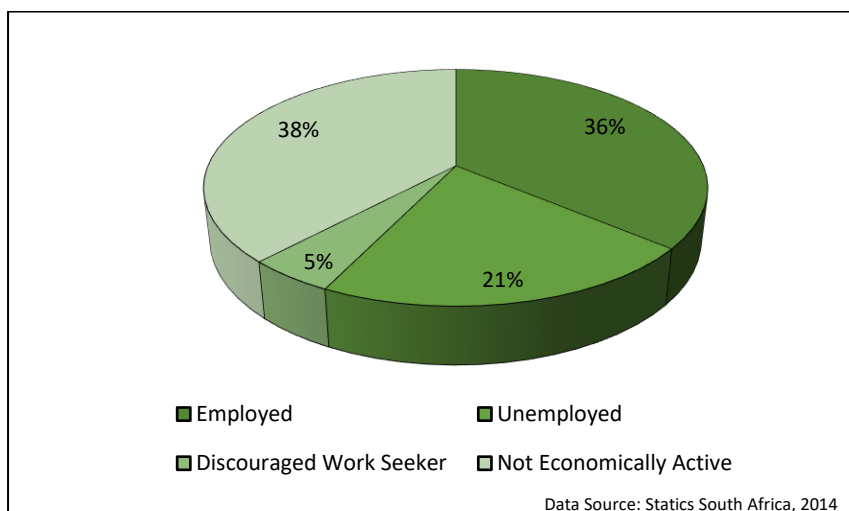


Figure 6: Employment status for Matjhabeng Local Municipality.

4 SECTION 4: RECEIVING ENVIRONMENT AND POTENTIAL IMPACTS

4.1 Development Proposal and Receiving Environment

The three proposed 100MW PV facilities are all located approximately 2.5km north east, as the crow flies, from of the urban edge of Riebeeckstad and approximately 5km from the Thabong. No dwellings were identified within the proposed development footprints. The two proposed 19.9 MW facilities are situated approximately 2km and 4km from Riebeeckstad and Thabong respectively.

The proposed development area and immediate surrounds are utilised for agriculture. The topography is relatively flat, which increases the potential for visual impacts. Possible sensitive visual receptors include, residents on the perimeter of the eastern side of Riebeeckstad, residents on farmsteads and travellers along the R70 route. The tree lines around the farmsteads do however provide some visual absorption capacity to mitigate the visual impact of these receptors.

It is noted that Matjhabeng Municipality is experiencing water supply issues as a result of poor upkeep of infrastructure upkeep and a lack of municipal funding (Will, 2021). The Municipality is also struggling with the aging electricity distribution infrastructure (Matjhabeng Integrated Development Plan, 2017).

4.2 Potential Social Impacts

The social variables considered for the proposed developments are grouped into seven main categories, in accordance with Vanclay's new list of social impact variables (Vanclay, 2002; Wong, 2013). The seven categories are as follows:

1. Health and social well-being impacts
2. Quality of the living environment impacts
3. Economic impacts and material well-being impacts
4. Cultural impacts
5. Family and community impacts
6. Institutional, legal, political and equity impacts
7. Gender relations impacts.

The categories listed above may, at times, overlap as certain impacts may affect more than one category. The categories were considered when identifying potential impacts posed by the development proposal.

Given the distance, social impacts, particularly changes to sense of place are expected to be highest within Riebeeckstad and Thabong, although impacts are expected to extend to other areas of Welkom.

The following potential impacts have been identified:

Potential Negative Impacts – Construction Phase:

- Perceived and actual increase in crime;
- Disturbance of daily life – disruptive and unruly behaviour of construction personnel;
- Increased traffic;
- Loss of sense of place/visual impacts; and,
- Increased pressure on constrained water resources in Welkom.

Potential Positive Impacts – Construction Phase:

- Increased economic opportunities for locals - accommodation rental, increased business,
- Job creation and skills development
- Improved stability of electricity supply

Potential Negative Impacts – Operational Phase:

- Loss of sense of place/visual impacts; and,
- Water Increased pressure on constrained water resources in Welkom.

Potential Positive Impacts – Operational Phase:

- Increased economic opportunities for locals - accommodation rentals, increased business;
- Job creation and skills development; and,
- Improved stability of electricity supply.

5 CONCLUSION

5.1 Summary of Document Review Findings

Job creation is one of the key goals of the National Development Plan and the proposed development of PV facilities is expected to significantly contribute to job creation. Renewable energy projects are noted favourable within all planning documents. With a decrease in the mining industry, economic development is needed in the Matjhabeng Local Municipality. The proposed development is expected to result in several negative impacts, but overall the social impact is expected to be positive as the development will provide economic input to the economy through job creation and the use of local businesses, and will also stabilise electricity supply in the municipality, which will further support business. The development will assist in achieving one of the municipalities goals of moving to a greener economy.

5.2 Fatal Flaws

Khauta / 75-100MW / 192ha, 193ha & 200 ha PV Developments

With regards to the PV developments, no fatal flaws have been identified for the three 100MW PV developments and for the two 19.9MW developments. The constrained water resources in the Matjhabeng Municipality must however be considered. If a significant percentage of the labour is sourced from outside the Welkom area, particularly during the construction phase, increased pressure on potable water sources may result.

Furthermore, the aging electricity distribution infrastructure within the municipality is of concern and could potentially impact the project and/or the distribution of the electricity generated by the project.

132kV Grid Connection Routes

No fatal flaws have been identified for the 132kV Grid Connection Route Option 1 or 2. Option 1 passes through farmland and is not expected to result in negative impacts, however, engagement with the relevant landowners would be required in order to confirm that the powerlines would not conflict with existing or planned land uses, such as agriculture, event venues and tourism.

Option 2, while passing through residential areas, will be placed nearby existing electrical grid infrastructure, and is thus not expected to create new social impacts.

44kV Grid Connection Routes

44kV Grid Connection Route Option 2 passes through a residential area, routed along a residential street, and is likely to result in visual impacts, albeit negligible. Option 1, while also passing through a

residential area, is routed along a regional road (i.e. larger road) with a larger open area between the road and houses. Option 1 is likely to have less of a social impact and is the preferred route. Option 2, while not considered fatally flawed, should be avoided.

5.3 Sensitive Areas

Sensitive areas identified include Riebeekstad and nearby farmsteads. The suburb of Thabong and Welkom as a whole, are also sensitive receptors but to lesser degree due to their distance from the proposed development site. Welkom falls within the Goldfields Tourism Route, which focuses on mine tourism. The proposed development is not expected to directly impact mining tourism but may impact Welkom's sense of place as a mining town.

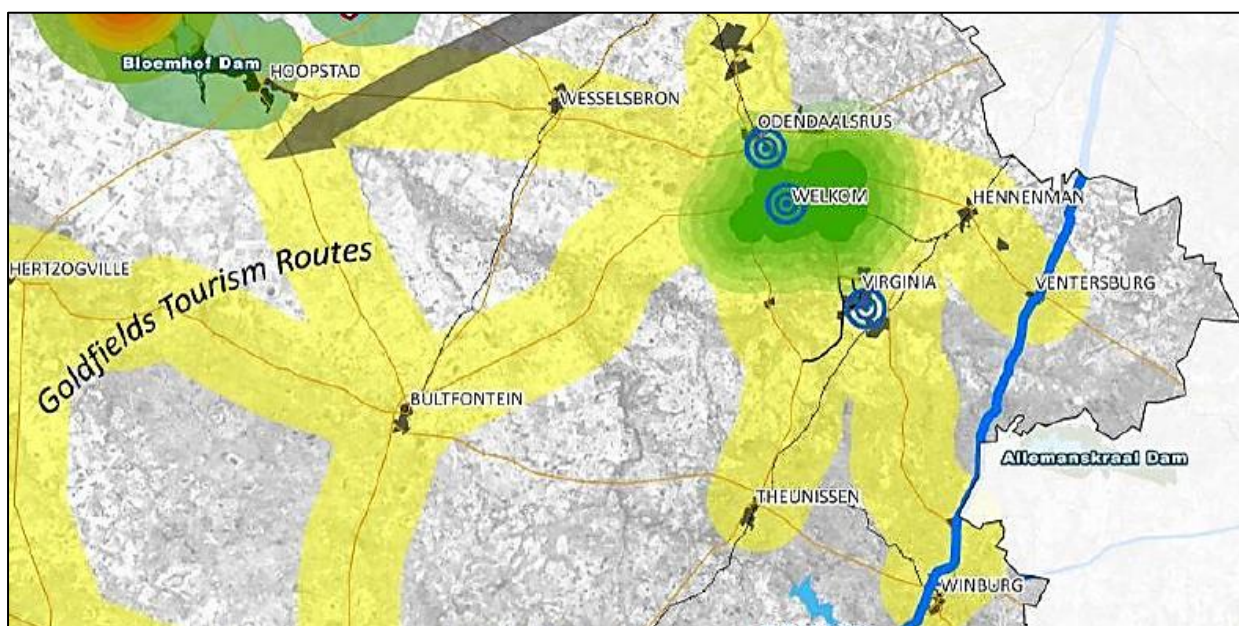


Figure 7: Goldfields Tourism Routes (yellow) (Free State PDSF, 2014).

5.4 No-Go Areas

No No-Go Areas have been identified, but as mentioned in point 5.2, the routing of electrical grid infrastructure through residential areas should be avoided. The placement of infrastructure, including the access roads, should also avoid farmsteads.

5.5 Conclusion

Based on the findings of the desktop Screening, the proposed development is expected to have an overall positive impact at a municipal and local level. From a social perspective, no fatal flaws have been identified for the three 100MW PV facilities or for the two 19.9MW PV facilities. Impacts to tourism and agriculture are not expected, but engagement with stakeholders will be required to confirm this.

Both Option 1 and Option 2 132kV Grid Connection Routes are expected to have a low social impact. Option 2 is the preferred 132kV route given that it would be placed next to existing electrical grid infrastructure, where visual impacts already exist. The 44kV Grid Connection Route Option 1 is the preferred route and Option 2 should be avoided.

The placement of infrastructure and development of storage area and access roads should avoid residential areas and farmsteads.

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