Eskom Holdings SOC Ltd

# THE PROPOSED SOLAR PHOTOVOLTAIC AND BATTERY ENERGY STORAGE SYSTEM AT KOMATI POWER STATION

## Social Impact Assessment

MARCH 2024

PUBLIC

Eskom Holdings SOC Ltd

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## Social Impact Assessment

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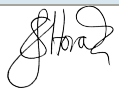
| Signature |  |  | | |
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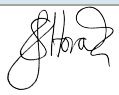
| Signature |  |  | | |
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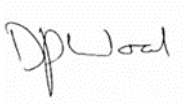
| Signature |  |  | | |
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## APPENDIX A

## KOMATI POWER STATION COMPONENT C PROJECTS ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

| Abbreviation | Definition |
|---|---|
| DSD | Dead Stop Date |
| EIA | Environmental Impact Assessment |
| ESF | Environmental and Social Framework |
| ESIA | Environmental and Social Impact Assessment |
| ESS | Environmental and Social Standards |
| FGM | Focus Group Meeting |
| GPN | Good Practice Note |
| GBV | Gender-based Violence |
| GW | Giga Watt |
| I&AP | Interested and Affected Parties |
| IDP | Integrated Development Plans |
| IPAP | Industrial Policy Action Plan |
| IRP | Integrated Resource Plan |
| MSDF | Mpumalanga Spatial Development Framework |
| NDM | Nkangala District Municipality |
| NDP | National Development Plan |
| NEMA | National Environmental Management Act |
| NGP | New Growth Parth |
| POWA | People Opposing Women Abuse |
| PV | Photovoltaic |
| REIPPP | Renewable Energy Independent Power Producer Programme |

| | |
|---|---|
| SAPS | South African Police Service |
| SIA | Social Impact Assessment |
| STLM | Steve Tshwete Local Municipality |

# 1 INTRODUCTION

Eskom has commissioned WSP to undertake the environmental permitting processes required to re-purpose the Komati Power Station in Komati, Mpumalanga. The following sections provide the project description, World Bank and South African legislative requirements, screening impact assessment, and terms of reference for the Environmental Impact Assessment (EIA) phase of the Social Impact Assessment (SIA).

# 2 PROJECT DESCRIPTION

Eskom is proposing the establishment of a solar electricity generating facility and associated infrastructure as part of its re-purposing programme for the Komati Power Station. The plan is to install 100MW of Solar Photovoltaics (PV) and a 150MW Battery Energy Storage System. The parcels of land for the proposed development are provided in **Figure 2-1** below. Eskom owns the identified parcels of land.

## 2.1 PROJECT LOCATION

The Komati Power Station is approximately 37km from Middelburg, 43km from Bethal and 40km from Emalahleni via Vandyksdrift in the Mpumalanga Province of South Africa. The GPS coordinates for the power plant are 26.0896668 S, and 29.4655907 E. The station has nine units, five 100MW units on the east (Units 1 to 5) and four 125 MW units on the west (Units 6 to 9), with a total installed capacity of 1000 MW. Its units are operated on a simple Rankine Cycle without reheating and with a low superheat pressure, resulting in a lower thermodynamic efficiency (efficiency up to 27%). Komati Units are small and have a higher operating and maintenance cost per megawatt generated than newer stations. Komati Power Station will reach its end-of-life expectancy in September 2022, when Unit Nine will have reached its dead stop date (DSD). Units 1 to 8 have already reached their DSD (Eskom, 2022).

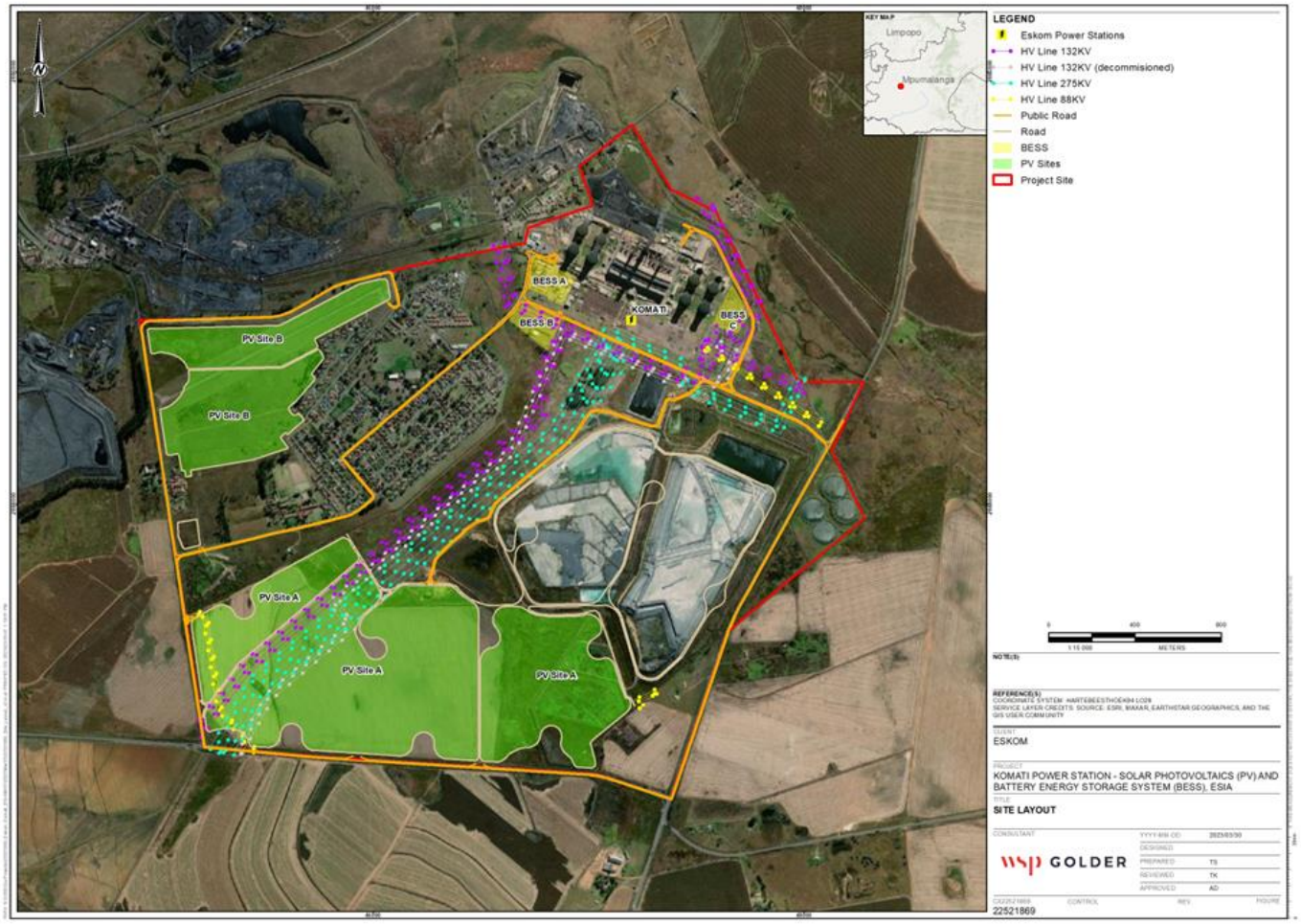



**Figure 2-1 – Locality map**

# 3 SOCIAL IMPACT ASSESSMENT METHODOLOGY

## 3.1 DATA COLLECTION

To understand the socio-economic baseline conditions of the project-affected areas and the socio-economic implications of the proposed project to the receiving environment, WSP conducted secondary desktop data collection (desktop review) and primary data collection as part of the stakeholder consultation process. These two methods are elaborated further in the following sections.

### 3.1.1 PRIMARY RESEARCH

WSP consulted with interested and affected parties (I&AP) during the scoping phase of the project.

A Focus Meeting (FGM) was held on 09 June 2022 at the Eskom Komati SBSS Conference Room. In addition, the draft scoping report was made available for public review for 30 days. All issues, questions, concerns, and suggestions for enhanced benefits raised by I&APs have been captured in the Comment and Response Report. The information derived from the meeting minutes was used to better understand the stakeholders' concerns, issues, and expectations. This process formed part of the primary research process.

The main issues raised by participants at the meeting were:

- Where would the labour for the project be sourced?
- What skills will be required when construction commences?
- Local businesses and contractors should be used during the construction and maintenance of the Solar Photovoltaics and Battery Energy Storage System.

### 3.1.2 DESKTOP REVIEW

WSP reviewed available documents to obtain information regarding the socio-economic conditions in the study area. The documents reviewed include the following:

- IDPs and Spatial Development Frameworks of the affected local and district municipalities.
- Socio-economic and demographic statistics (sourced from Statistics South Africa's 2011 census data, municipal report, provincial data, and the 2016 community survey).
- Documents concerning the proposed project, which included the project description document.
- Social impact assessments are undertaken for the closure of the Komati Power Station.
- Available maps and satellite imagery.

# 4 WORLD BANK AND SOUTH AFRICAN LEGISLATIVE REQUIREMENTS

The legislation related to the project aids in identifying and assessing the associated potential impacts. This section identifies the documentation reviewed as part of the assessment process.

### 4.1.1 WORLD BANK BORROWER REQUIREMENTS

The World Bank Environmental and Social Framework sets out the mandatory requirements for projects seeking funding from the Bank. This framework aims to ensure that the Borrower (Eskom)

assesses and manages the environmental and social risks and impacts associated with the project and, where possible, minimises the project's impact. The framework is underpinned by the Environmental and Social Standards (ESS) and, in particular, ESS1, which set out the requirements for borrowers to identify and assess environmental and social risks and impacts associated with projects supported by the Bank through Investment Project Financing.

The objectives of the ESS1 are:

- To identify, evaluate, and manage the project's environmental and social risks and impacts in a manner consistent with the ESSs.
- To adopt a mitigation hierarchy approach to:
  a) Anticipate and avoid risks and impacts;
  b) Where avoidance is not possible, minimise or reduce risks and impacts to acceptable levels;
  c) Once risks and impacts have been minimised or reduced, mitigate, and
  d) Where significant residual impacts remain, compensate for or offset them where technically and financially feasible.
- To adopt differentiated measures so that adverse impacts do not fall disproportionately on the disadvantaged or vulnerable, and they are not deprived of sharing development benefits and opportunities resulting from the project.
- To utilise national environmental and social institutions, systems, laws, regulations, and procedures to assess, develop, and implement projects whenever appropriate.
- To promote improved environmental and social performance in ways which recognise and enhance the borrower capacity (World Bank, 2018)

### 4.1.2 THE CONSTITUTION OF SOUTH AFRICA

Section 151 of the Constitution states that local government should provide a democratic and accountable government for communities. It also encourages municipalities to ensure the provision of services to communities sustainably to promote social and economic development. The local government must promote a safe and healthy environment and encourage community involvement in local government matters.

**Table 4-1 - Aspects of the South African Constitution Applicable to SIA**

| Regulation | Description |
|---|---|
| Section 24 of the Constitution | Everyone has the right.<br>a) to an environment that is not harmful to their health or well-being, and<br>b) to have the environment protected for the benefit of present and future generations through reasonable legislative and other measures that:<br>i. prevent pollution and ecological degradation.<br>ii. promote conservation; and<br>iii. secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development. |

### 4.1.3 NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (NEMA) (ACT NO 107 OF 1998)

According to NEMA, sustainable development requires the integration of social, economic, and environmental factors in the planning, implementation, and evaluation of decisions to ensure that development serves present and future generations. NEMA also sets out the process for public participation.

### 4.1.4 NATIONAL ENVIRONMENTAL MANAGEMENT: AIR QUALITY ACT (ACT 39 OF 2004)

This act advocates for enhancing and protecting air quality in the country. Future projects should refrain from contributing to air pollution and ecological degradation. It also promotes justifiable economic and social development while securing ecologically sustainable development.

### 4.1.5 NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT (ACT 59 OF 2008)

The Act ensures that future interventions protect the affected communities' health, well-being and environment. It seeks to increase awareness of the impact of waste on the health, well-being and environment of affected communities.

### 4.1.6 NATIONAL WATER ACT (ACT 36 OF 1998)

The National Water Act ensures that projects and future interventions maintain water resources' capability to meet basic human needs. The Act seeks to maintain equitable access and the efficient, sustainable, and beneficial use of water. Future developments must reduce and prevent the pollution and degradation of water resources.

### 4.1.7 NATIONAL ENERGY ACT (ACT NO. 34 OF 2008)

The Electricity Regulation Act gives the Minister of Energy the power to determine the need for new generation capacity and to take the initiative for its procurement. It also states that one needs a generation licence to produce over one megawatt of electricity.

The Act aims to strengthen energy planning in the Electricity Regulation Act (Act No. 4 of 2006), Second Amendment (2011). The Act gives the Minister of Energy power to determine new generation capacity and approve the generation and procurement of electricity. A licence for generation capacity is subject to ministerial approval. The Electricity Regulations on new generation capacity were amended in 2015. This amendment provides for renewable energy power generation, including PV generation.

### 4.1.8 NATIONAL DEVELOPMENT PLAN

The National Development Plan (NDP) seeks to eliminate poverty and reduce inequality by 2030. The NDP aims to achieve its goal by growing an inclusive economy, building capabilities, enhancing the state's capacity, and promoting leadership and partnerships throughout society. A key focus of the NDP is the country's ability to return to a state of continuous and uninterrupted electricity supply. This uninterrupted supply was to be achieved by increasing the electricity generation reserve margin from 1% (2014) to 19% in 2019, requiring the development of 10 Giga Watt (GW) of additional electricity capacity by 2019 against the 2010 baseline of 44GW. Five of the 10 GW were to be sourced from renewable energy sources, with a 2GW to be operational by 2020. The NDP aims to acquire 2GW of renewable energy to move the country to less carbon-reliant energy production by 2030.

### 4.1.9 NEW GROWTH PATH FRAMEWORK

The New Growth Path framework sets out the framework for economic policy and the drivers for creating jobs in the South African economy. The New Growth Path (NGP) targeted 5 million new jobs by 2020. It also aimed for 300,000 additional direct jobs by 2020 to green the economy. The framework identifies investments in five key areas: energy, transport, communication, water and housing. High levels of public investment in these areas will create jobs in infrastructure construction, operation and maintenance. The New Growth Path identifies five other priority areas in the programme to create job partnerships between the state and the private sector. The green economy will include expansions in construction and the production of technologies for solar, wind and biofuels as supported by the draft Energy on Integrated Resource Plan. There is potential for renewable energy generation to provide for some of these 300,000 jobs and to provide green power to the economy to generate additional jobs (State Employment of Renewable Energy in South Africa, 2015).

### 4.1.10 INDUSTRIAL POLICY ACTION PLAN (IPAP)

The Department of Trade and Industry drives the IPAP. The IPAP is an annually updated, three-year rolling plan for industrial policy implementation; since 2011, it has specifically identified the energy sector (solar and wind energy) as a priority for the country's industrial sector (2014). In its review report, the following was reported in terms of the progress made in the green economy, specifically reporting on the Renewable Energy Independent Power Producer Programme (REIPPPP) programme, stating that this has proved an extraordinarily successful green economy project, attracting investment to the value of R201.8 billion, contributing 3,162 MW of electricity generation capacity and mandating South African entity participation of 40% (IPAP 2018/19-2020/21).

### 4.1.11 INTEGRATED RESOURCE PLAN 2019

The Integrated Resource Plan (IRP) is an electricity infrastructure development plan based on the least-cost electricity supply and demand balance, considering the security of supply and the environment to minimise harmful emissions and water usage. The first plan was promulgated in March 2011. The plan is a living plan and was last updated in 2019.

The 2019 report indicates that 6 422 MW under the REIPPP has been procured, with 3 876 MW operational and made available to the grid. The current base from wind was 1 980 MW in 2018. By 2030, this will be 17 742 MW, the highest of all renewable energy sources. The next closest is PV Solar 8 288, but coal will still dominate in 2030 with 333 64 MW.

**Table 4-2: Draft IRP 2018**

| | Coal | Nuclear | Hydro | Storage (Pumped Storage) | PV | Wind | CSP | Gas / Diesel | Other (CoGen, Biomass, Landfill) | Embedded Generation |
|---|---|---|---|---|---|---|---|---|---|---|
| 2018 | 39 126 | 1 860 | 2 196 | 2 912 | 1 474 | 1 980 | 300 | 3 830 | 499 | Unknown |
| 2019 | 2 155 | | | | | 244 | 300 | | | 200 |
| 2020 | 1 433 | | | | 114 | 300 | | | | 200 |
| 2021 | 1 433 | | | | 300 | 818 | | | | 200 |
| 2022 | 711 | | | | 400 | | | | | 200 |
| 2023 | 500 | | | | | | | | | 200 |
| 2024 | 500 | | | | | | | | | 200 |
| 2025 | | | | | 670 | 200 | | | | 200 |
| 2026 | | | | | 1 000 | 1 500 | | 2 250 | | 200 |
| 2027 | | | | | 1 000 | 1 600 | | 1 200 | | 200 |
| 2028 | | | | | 1 000 | 1 600 | | 1 800 | | 200 |
| 2029 | | | | | 1 000 | 1 600 | | 2 850 | | 200 |
| 2030 | | | 2 500 | | 1 000 | 1 600 | | | | 200 |
| TOTAL INSTALLED | 33 847 | 1 860 | 4 696 | 2 912 | 7 958 | 11 442 | 600 | 11 930 | 499 | 2600 |
| Installed Capacity Mix (%) | 44.6 | 2.5 | 6.2 | 3.8 | 10.5 | 15.1 | 0.9 | 15.7 | 0.7 | |

Installed Capacity
Committed / Already Contracted Capacity
New Additional Capacity (IRP Update)

However, the 2019 report also states that build limits on renewables (wind and solar) will remain in place until the following review, limiting the development of new renewable energy build projects. Imposing annual build limits on renewables for the period up to 2030 does not affect the capacity of wind or solar PV in any significant way.

### 4.1.12 NATIONAL SPATIAL DEVELOPMENT PERSPECTIVE

According to the National Spatial Development Perspective, spatial development should, where appropriate, accommodate and promote private economic ventures, which can aid sustainable economic growth, relieve poverty, increase social investment, and improve service delivery. Consequently, municipal-level spatial planning has been considered where relevant.

### 4.1.13 SPATIAL PLANNING AND LAND USE MANAGEMENT ACT (ACT 16 OF 2013)

The Act ensures that projects maintain progress in promoting social and economic inclusion. Future interventions should promote the efficient and sustainable use of land interventions and contribute towards redressing equity concerns in the affected communities through land-use management systems.

### 4.1.14 MPUMALANGA SPATIAL DEVELOPMENT FRAMEWORK

The Mpumalanga Spatial Development Framework (MSDF) emanates from the SPLUMA. It outlines the role of transparent developmental, regulatory land and development management.

The MSDF plans to explore the possibility of renewable energy generation. It intends to use land with low agricultural potential and unused for renewable energy production, namely solar and wind

(Department of Cooperative Governance and Traditional Affairs, Mpumalanga Provincial Government, 2019).

### 4.1.15 NKANGALA DISTRICT MUNICIPALITY INTEGRATED DEVELOPMENT PLAN

The Municipal Sysassess32 of 2000 requires municipal planning to be developmentally oriented and that municipalities undertake an integrated development planning process to produce Integrated Development Plans (IDP).

The IDP highlights the Nkangala District Municipality's (NDM) vision to "improve the quality of life for all." The NDM aims to accomplish its vision by aligning its priorities with the National Development Plan – Vision 2030 (NDP) (Nkangala District Municipality, 2021).

### 4.1.16 STEVE TSHWETE LOCAL MUNICIPALITY INTEGRATED DEVELOPMENT PLAN

The Steve Tshwete Local Municipality (STLM) strives to be the leading service delivery and governance municipality. It intends to achieve this through the following strategic goals:

1. Provision of sustainable and accessible essential services to all.
2. Provide a safe, healthy environment.
3. Promote economic growth and job creation.
4. Promote good governance, organisational development, and financial sustainability.

### 4.1.17 GPN - ADDRESSING SEXUAL EXPLOITATION AND ABUSE AND SEXUAL HARASSMENT (SEA/SH) IN INVESTMENT PROJECT FINANCING INVOLVING MAJOR CIVIL WORKS, 2020

This Good Practice Note (GPN) aims to assist Task Teams in identifying risks of Sexual Exploitation and Abuse (SEA)/ Sexual Harassment (SH) that can emerge in projects involving major civil works contracts – and to advise on how to manage such risks best.

The Environmental and Social Impact Assessment (ESIA) has identified the potential social impacts the project may have on women in the project-affected area and recommends measures to mitigate these potential impacts.

### 4.1.18 GPN - ADDRESSING GENDER-BASED VIOLENCE IN INVESTMENT PROJECT FINANCING INVOLVING MAJOR CIVIL WORKS, 2018

This GPN seeks to assist Task Teams in establishing an approach to identify risks of gender-based violence, in particular SEA and SH, that can emerge in Investment Project Financing with major civil works contracts and to advise accordingly on how to manage such risks best.

The GPN builds on World Bank experience and good international industry practices, including those of other development partners. While World Bank Task Teams are the primary audience, the GPN aims to contribute to a growing knowledge base.

The ESIA identifies the potential social impacts that the project may have on women in the project-affected area.

### 4.1.19 GPN – GENDER, 2019

To address constraints cited in many economies as impediments to closing these gaps, such as occupational sex segregation, with women and girls often streamed into lower-paying, less secure fields of study and work; high rates of unpaid work by women; lack of safe, affordable transportation; high prevalence of gender-based violence and, more specifically, of SEA/SH in workplaces; lack of clear land and housing ownership and tenure security, wherein women's rights tend to be informal so that they are at greater risk of being displaced from land and other asset ownership; and inadequate investment in and prioritisation of care services, from early childhood to old age.

The strategy sets out to help countries address challenges such as maternal mortality while also considering emerging challenges such as ageing populations, climate change, fragility, conflict, violence, and slowing economic growth.

The ESIA will identify the potential social impacts that the project may have on the health and well-being of women in the project-affected area. It also assesses the possible effects on the social standing and benefits of the project.

There will be no physical or economic displacement due to the project.

### 4.1.20 GPN - ROAD SAFETY, 2019

The Environmental and Social Framework (ESF) road safety requirements are defined in ESS four. The following objective is applicable:

- To identify, evaluate and monitor the potential traffic and road safety risks to workers, affected communities and road users throughout the project life-cycle and, where appropriate, will develop measures and plans to address them. The Borrower will incorporate technically and financially feasible road safety measures into the project design to prevent and mitigate potential road safety risks to road users and affected communities.
- To undertake a road safety assessment for each phase of the project, and will monitor incidents and accidents and prepare regular reports of such monitoring. The Borrower will use the reports to identify negative safety issues and establish and implement measures to resolve them.
- To put in place appropriate processes, including driver training, to improve driver and vehicle safety and systems for monitoring and enforcement. The Borrower will consider the safety record or rating of vehicles in purchase or leasing decisions and require regular maintenance of all project vehicles.
- To take appropriate safety measures to avoid incidents and injuries to members of the public associated with the operation of construction equipment.

The impacts on traffic and general road safety in the project-affected area will be assessed in the ESIA.

### 4.1.21 GPN - ASSESSING AND MANAGING THE RISKS AND IMPACTS OF THE USE OF SECURITY PERSONNEL, 2018

To assess and manage potential environmental and social risks and impacts arising from projects.

The ESIA assesses and considers the health, safety and security of communities.

### 4.1.22 GPN - ASSESSING AND MANAGING THE RISKS OF ADVERSE IMPACTS ON COMMUNITIES FROM TEMPORARY PROJECT-INDUCED LABOUR INFLUX, 2016

To assist in identifying and managing risks to and impacts on local communities related to the influx of labour that typically results from construction works.

The potential impacts of the influx of labourers and labour seekers will be assessed in the ESIA.

### 4.1.23 FREEDOM OF ASSOCIATION AND PROTECTION OF THE RIGHT TO ORGANISE CONVENTION, 1948 (NO. 87)

Without distinction, workers and employers shall have the right to establish and, subject only to the rules of the organisation concerned, to join organisations of their choosing without previous authorisation.

The right to associate is enshrined in the constitution of South Africa.

Eskom will adhere to the International Labour Organisation Conventions, which South Africa has ratified.

### 4.1.24 RIGHT TO ORGANISE AND COLLECTIVE BARGAINING CONVENTION, 1949 (NO. 98)

Workers' and employers' organisations shall enjoy adequate protection against any acts of interference by each other or each other's agents or members in their establishment, functioning or administration.

The right to collectively bargain is enshrined in the constitution of South Africa.

Eskom will adhere to the International Labour Organisation Conventions, which South Africa has ratified.

### 4.1.25 FORCED LABOUR CONVENTION, 1930 (NO. 29)

It aims to suppress forced or compulsory labour in all forms within the shortest possible period.

The constitution of South Africa states that no one may be subjected to slavery, servitude or forced labour.

Eskom will adhere to the International Labour Organisation Conventions, which South Africa has ratified.

### 4.1.26 ABOLITION OF FORCED LABOUR CONVENTION, 1957 (NO. 105)

Undertakes to suppress and not make use of any form of forced or compulsory labour-

a) As a means of political coercion or education or as a punishment for holding or expressing political views or views ideologically opposed to the established political, social or economic system;
b) As a method of mobilising and using labour for purposes of economic development;
c) As a means of labour discipline;
d) As a punishment for having participated in strikes;
e) As a means of racial, social, national or religious discrimination.

The constitution of South Africa states that no one may be subjected to slavery, servitude or forced labour.

Eskom will adhere to the International Labour Organisation Conventions, which South Africa has ratified.

### 4.1.27 MINIMUM AGE CONVENTION, 1973 (NO. 138)

Seeks to ensure the effective abolition of child labour and to progressively raise the minimum age for admission to employment or work to a level consistent with young persons' fullest physical and mental development.

The Basic Conditions of Employment Act in South Africa states that employing a child younger than 15 is a criminal offence.

Eskom will adhere to the International Labour Organisation Conventions, which South Africa has ratified.

### 4.1.28 WORST FORMS OF CHILD LABOUR CONVENTION, 1999 (NO. 182)

To secure the prohibition and elimination of the worst forms of child labour as a matter of urgency.

The Basic Conditions of Employment Act in South Africa states that employing a child younger than 15 is a criminal offence.

Eskom will adhere to the International Labour Organisation Conventions, which South Africa has ratified.

### 4.1.29 EQUAL REMUNERATION CONVENTION, 1951 (NO. 100)

To ensure the application to all workers of the principle of equal remuneration for men and women workers for work of equal value.

The Employment Equity Act states that no person may discriminate directly or indirectly against an employee based on race, gender, sex, pregnancy, marital status, family responsibility, ethnic or social origin, colour, sexual orientation, age, disability, religion, HIV status, conscience, belief, political opinion, culture, language and birth or any other arbitrary grounds.

Eskom will adhere to the International Labour Organisation Conventions, which South Africa has ratified.

### 4.1.30 DISCRIMINATION (EMPLOYMENT AND OCCUPATION) CONVENTION, 1958 (NO. 111)

To declare and pursue a national policy to promote equal opportunity and treatment regarding employment and occupation.

The Employment Equity Act states that no person may discriminate directly or indirectly against an employee based on race, gender, sex, pregnancy, marital status, family responsibility, ethnic or social origin, colour, sexual orientation, age, disability, religion, HIV status, conscience, belief, political opinion, culture, language and bh or on any other arbitrary grounds.

Eskom will adhere to the International Labour Organisation Conventions, ratified by South Africa.

### 4.1.31 OCCUPATIONAL SAFETY AND HEALTH CONVENTION, 1981 (NO. 155)

Employers shall be required to ensure that the workplaces, machinery, equipment and processes under their control are safe and without risk to health.

The Occupational Health and Safety Act seeks to provide for the health and safety of people at work or in connection with the use of plant and machinery.

Eskom will adhere to the International Labour Organisation Conventions, ratified by South Africa.

# 5 SOCIAL BASELINE

## 5.1 MPUMALANGA PROVINCE

Mpumalanga Province is located in the north-eastern part of South Africa. The province borders two of South Africa's neighbouring countries, Mozambique and Swaziland, and four other South African provinces, namely, Gauteng, Limpopo, KwaZulu-Natal and Free State Provinces (**Figure 5-1**). Mpumalanga is characterised by the high plateau grasslands of the Middleveld, which roll eastwards for hundreds of kilometres. It rises towards mountain peaks in the northeast and terminates in an immense escarpment (Mpumalanga Provincial Government, 2022).


**Figure 5-1 - South African regional map** (Global Africa Network, 2017)

Mpumalanga Province covers an area of 76 495km² and has a population of approximately 4 300 000 (Statistics South Africa, 2022). The capital city of Mpumalanga is Mbombela, and other major cities and towns include Emalahleni, Standerton, eMkhondo, Malelane, Ermelo, Barberton and Sabie. The province is divided into three district municipalities: Gert Sibande, Ehlanzeni and Nkangala District Municipalities. These three districts are further subdivided into 17 Local Municipalities. The proposed development falls within the STLM. The STLM falls within the NDM.

## 5.2 NKANGALA DISTRICT MUNICIPALITY

The NDM has municipal executive and legislative authority in an area that includes more than one municipality, making it a Category C municipality in the Mpumalanga Province. It is one of three district municipalities in the province, comprising 22% of its geographical area. The NDM comprises the Victor Khanye, Emalahleni, Steve Tshwete, Emakhazeni, Thembisile Hani, and Dr JS Moroka local municipalities (Figure 5-2). The NDM is headquartered in Middelburg. The NDM is the

economic hub of Mpumalanga and is rich in minerals and natural resources (Nkangala District Municipality, 2022).

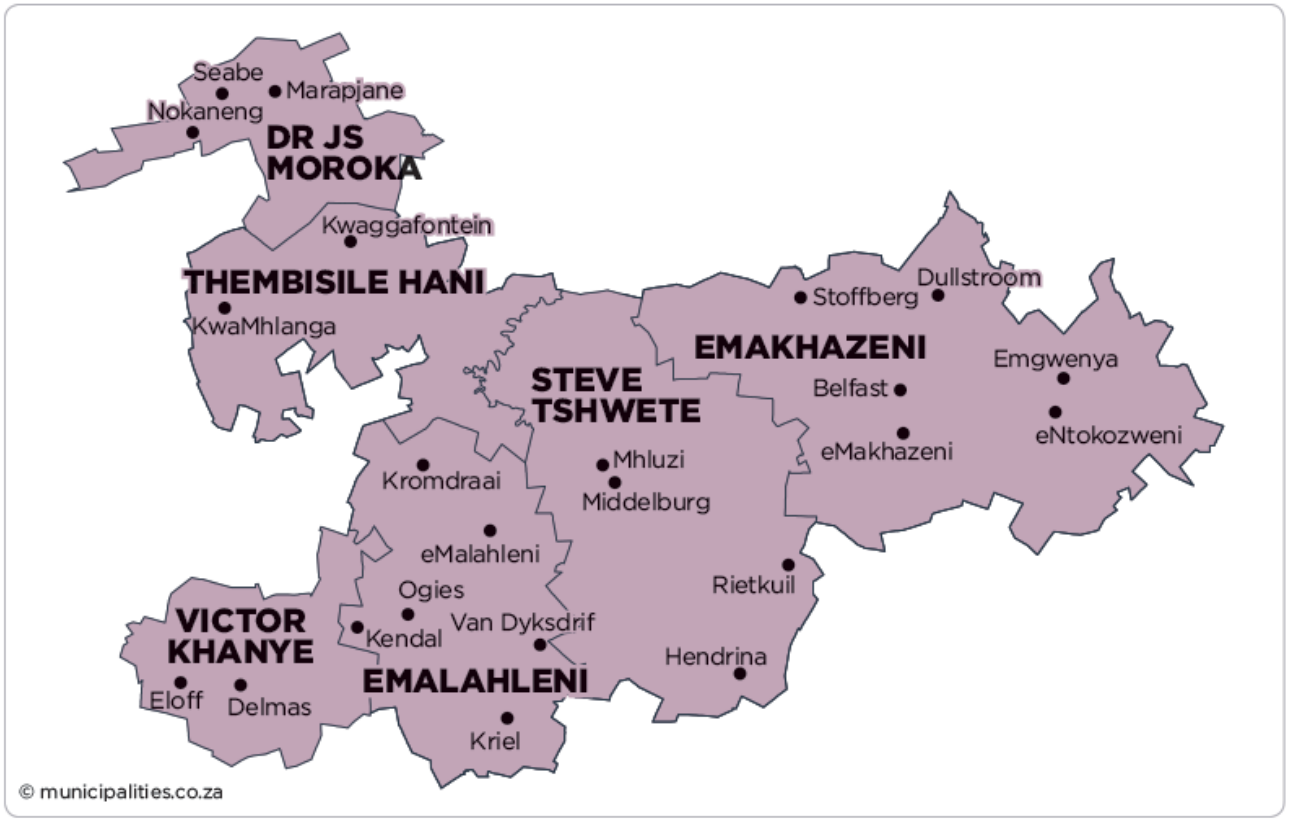



**Figure 5-2 - Nkangala District Municipality (Municipalities of South Africa, n.d.)**

## 5.3 STEVE TSHWETE LOCAL MUNICIPALITY

STLM is approximately 3,976 square kilometres in extent, representing 23.7% of the NDM's land mass. To the west, it is bordered by the Emalahleni and Thembisile Hani Local Municipalities; the Govan Mbeki and Msukaligwa Local Municipalities in Gert Sibande District to the south; and the Emakhazeni and Chief Albert Luthuli Local Municipalities to the east (Figure 5-2). Adjacent to the north of the Steve Tshwete Municipality is Elias Motsoaledi Municipality, which forms part of the Sekhukhune District Municipality in Limpopo Province.

### 5.3.1 POPULATION

The STLM's population increased to 278,749 between 2011 and 2016 (Figure 5-3), which represents an increase of 21.3% over the five years. The growth rate was 4.3% over the same period. In 2030, the municipality's population will be approximately 510,000 (Steve Tshwete Local Municipality, 2016). The gender distribution of the municipality was almost equal, with females representing 48% and males 52% of the population in 2011(Figure 5-4). People between 15 and 64 years old represent 70.7% of the population, with 25% representing the young and 4.3% the elderly (Statistics South Africa, 2022).

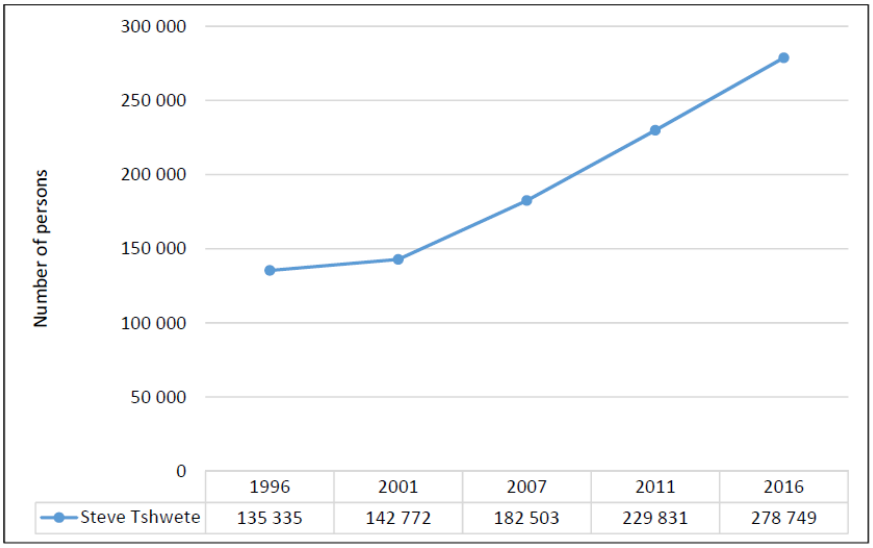



**Figure 5-3 - STLM population size (Steve Tshwete Local Municipality, 2016)**

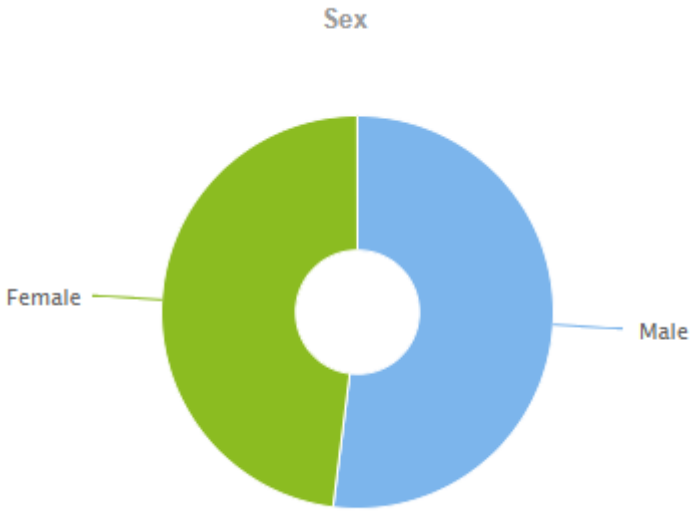



**Figure 5-4 - STLM gender distribution (Statistics South Africa, 2022)**

### 5.3.2 ETHNICITY AND LANGUAGE

Almost 74% of the municipality is represented by Black African people, followed by nearly 22 % White, and smaller portions represent the remaining ethnicities, as shown in **Table 5-1** (Statistics South Africa, 2022).

**Table 5-1 - Distribution of Steve Tshwete Local Municipality by population group** (Statistics South Africa, 2022)

| Group | Percentage |
|---|---|
| Black African | 73.6% |

| | |
|---|---|
| Coloureds | 2.6% |
| Indian or Asian | 1.6% |
| White | 21.8% |
| Other | 0.4% |

Isizulu is the most spoken language in the municipality, followed by Afrikaans, isiNdebele, Sepedi, and others in smaller proportions (Table 5-2).

**Table 5-2 - Distribution of Steve Tshwete Local Municipality by language spoken**

| Language | Percentage |
|---|---|
| IsiZulu | 27,8% |
| Afrikaans | 22,1% |
| IsiNdebele | 14,6% |
| Sepedi | 10,6% |
| English | 5,8% |
| Others | 19.1% |

### 5.3.3 EDUCATION

In 2011, approximately 17,000 people over 20 had no formal education, and about 42,500 had completed secondary education. About 2.2 % (5,050 people) have received higher educational training. Table 5-3 shows the levels of education represented in the municipality.

**Table 5-3 - Distribution of the levels of education represented in the municipality**

| Group | Percentage |
|---|---|
| No Schooling | 3,1% |
| Some Primary | 37,8% |
| Completed Primary | 5,8% |
| Some Secondary | 31,1% |
| Completed Secondary | 18,5% |
| Higher Education | 2,2% |
| Not Applicable | 1,5% |

### 5.3.4 VULNERABLE GROUPS

Vulnerable groups include the economically disadvantaged, racial and ethnic minorities, the uninsured, low-income children, the elderly, the homeless, those with HIV, and those with other chronic health conditions, including severe mental illness and indigenous people. These groups are likely to occur in the broader Project affected area.

### 5.3.5 EMPLOYMENT AND INCOME PROFILE

The unemployment rate of STLM decreased from 19.7% in 2011 to 16.4% and is among the lowest in the municipalities within the Mpumalanga Province. The unemployment rate for females at 21.8% is nearly double that of males at 12.9%. As recorded by the 2011 census, youth unemployment is at 27.1% (Steve Tshwete Local Municipality, 2016).

### 5.3.6 TYPES OF EMPLOYMENT

In 2011, 682 of the village's 1,821 residents were employed in the formal sector and 76 in the informal sector in Komati (Urban-Econ, 2020). Eskom is the major employer in the area. Komati is also surrounded by agricultural land where people will be employed in this sector.

### 5.3.7 LABOUR

The Quarterly Labour Force Survey (QLFS) is a household-based sample survey. It collects information on the labour market activity of individuals aged 15 years and older, and provides the official measures of employment and unemployment (Statistics South Africa, 2023).

Mpumalanga reported the largest increase in employment for quarter 3 of 2023 at 44,000 (Statistics South Africa, 2023).

Eskom has established a Just Energy Transition Office (JETO). The JETOwill retain all overall responsibility for ensuring that the provisions of the ESMP are met and it is committed to implementing the labour management plans for Eskom’s contractors. These plans and procedures must be shared with the potential employees before their appointment. This introduction to the policies contained within the labour management plan will include terms and conditions, risks and occupational health and safety mitigation measures, and the general HR policies, including access to submit concerns (Eskom Holdings SOC Ltd, 2024).

### 5.3.8 CHILD LABOUR

In South Africa, it is the mandate of the Department of Labour to prevent, reduce and eventually eliminate child labour. Between 2010 and 2019, reports of children,

- Doing work as prohibited by Basic Employment Act decreased from 122 to 83.
- Working long hours of any type of work, decreased by 97 from 417 to 320.
- Conducting “market” that interfered with schooling decreased from 14 to 3.
- A child's work-related activities causing them to miss school or led them to experience difficulties at school decreased from 35 to 8.
- Doing hazardous work decreased from 291 to 193 (Statistics South Africa, 2019).

### 5.3.9 HOUSING

The number of households in the STLM increased by almost 22,000, from 64,971 in 2011 to 86,713 in 2016. The STLM provides these households with water, electricity and waste services. The average size of a household has declined from 3.5 to 3.2 people in the same period (Steve Tshwete Local Municipality, 2016).

### 5.3.10 HEALTH

The main challenge to health care in the STLM is the prevalence of HIV/AIDS. A decrease in the HIV/AIDS prevalence rate was recorded between 2011 and 2013, declining from 52% to 43%. This decrease is attributed to increased HIV Counselling and Testing campaigns in the local municipality and increased community awareness (Steve Tshwete Local Municipality, 2016).

### 5.3.11 SECURITY AND SAFETY

The Blinkpan Police Station services the Komati community. The crime statistic published for the 2020/2021 financial year by the South African Police Service (SAPS) indicated that only 62 contact crimes were committed during the period, with assault with the intent to inflict grievous bodily harm recorded, common assault and robbery with aggravating circumstances representing 89% of contact crimes.

In total, 298 community-reported serious crimes were reported at the Blinkpan Police Station, with 71% (208) being theft, followed by contact crimes (21%) and property-related crimes (6%).

### 5.3.12 GENDER-BASED VIOLENCE

Regarding gender-based violence, i.e. Rape, Sexual assault and contact sexual offences, two cases were recorded at the Blinkpan Police Station during the 2020/2021 period. Both cases were rape cases.

No local organisation in the Komati area offers gender-based violence (GBV) support services to victims. However, the Department of Social Development established a GBV command centre in 2013, allowing survivors to contact the centre and be assigned a social worker close to them. Some national NGOs offer services to GBV victims: People Opposing Woman Abuse (POWA), Sonke Gender Justice and Shukumisa. Although these services are established nationally, local offices and/or councillors are made available to communities.

### 5.3.13 AGRICULTURAL LANDS

There are 8 681 households that take part in agricultural activities in the Steve Tshwete Local Municipality. The main types are poultry (28%), livestock (24%) and vegetable growing (21%). Other crops and other types of agriculture represent 9% and 19%, respectively.

## 5.4 KOMATI VILLAGE

### 5.4.1 POPULATION

In 2011, the Komati had a population of 1,821 people. The gender distribution of the village was predominantly male, with females representing 42.2% and males 57.8% of the population in 2011(Figure 5-5). People between 15 and 64 years old represent 77.6% of the population, with 16.7% representing the young and 5.6% the elderly (Statistics South Africa, 2023).

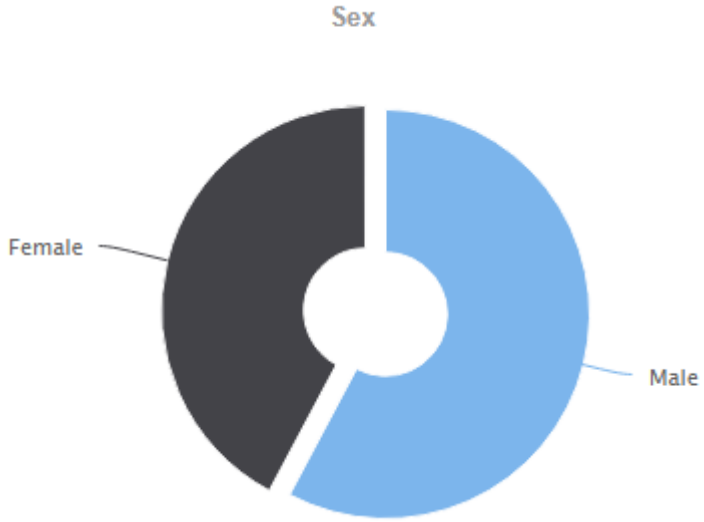



**Figure 5-5 - Komati gender distribution (Statistics South Africa, 2023)**

### 5.4.2 ETHNICITY AND LANGUAGE

Almost half of the village is represented by Black African people, followed by a nearly equal amount of White people, and smaller portions represent the remaining ethnicities, as shown in **Table 5-4** (Statistics South Africa, 2023).

**Table 5-4 - Distribution of Komati Village by population group** (Statistics South Africa, 2023)

| Group | Percentage |
|---|---|
| Black African | 49.4% |
| Coloureds | 1.9% |
| Indian or Asian | 0.5% |
| White | 48.0% |
| Other | 0.2% |

Afrikaans is the most spoken language in the village, followed by isiZulu, English, Sepedi, and others in smaller proportions (Table 5-5).

**Table 5-5 - Distribution of Komati by language spoken**

| Language | Percentage |
|---|---|
| Afrikaans | 50.4% |
| IsiZulu | 14.9% |

| | |
|---|---|
| English | 10% |
| SiSwati | 5.7% |
| IsiNdebele | 5.1% |
| Others | 13.9% |

### 5.4.3 EDUCATION

In 2011, approximately 49 people over 20 had no formal education, and about 142 people had received or completed a primary school level of education. About 661 people had received secondary education, and roughly 41% (746 people) had completed secondary educational training. Approximately 12.1% of the population had received a higher educational level of training. Table 5-6 shows the levels of education represented in the village.

**Table 5-6 - Distribution of the levels of education represented in the village**

| Group | Percentage |
|---|---|
| No Schooling | 2.7% |
| Some Primary | 5.5% |
| Completed Primary | 2.3% |
| Some Secondary | 36.3% |
| Completed Secondary | 41% |
| Higher Education | 12.1% |

### 5.4.4 EMPLOYMENT AND INCOME PROFILE

The unemployment rate of STLM decreased from 19.7% in 2011 to 16.4% and is among the lowest in the municipalities within the Mpumalanga Province. The unemployment rate for females at 21.8% is nearly double that of males at 12.9%. As recorded by the 2011 census, youth unemployment is 27.1% (Steve Tshwete Local Municipality, 2016).

Several regional projects have been planned or are being implemented to reduce the impact of lost income in the STLM, NDM and Emalahleni local municipality, namely the establishment of the Steve Tshwete Hotel, the Centre of Excellence for Steel and Metal Fabrication, Crop farming with mine-affected water at the Mafube Colliery, the establishment of a Fly Ash Beneficiation Plant etc.

Further more the following activities that will be supported under Component C's include among others: Agriculture (farming and gardens): Agrivoltaics project including; Training centres for welding, solar and wind turbine technical training, and community development training; Assembly of containerised microgrids; The establishment of an Early Childhood Development centre; Digital hubs and digital connection of communities; Upgrade/ expansion of sport and recreation facilities;

Community support programs centres, health services, etc; Purchasing of land for the agricultural activities); Employment of labour, minor civil works, Renovation/construction associated with the digital hub; Catering services for employees working in projects and Renewable energy recycling facilities

These projects form part of the Component C projects in the Komati Power Station Environmental and Management Plan and will create an estimated 790 job opportunities. These jobs will offset some of the negative impacts from the closure of Komati power station.

## 5.5 SOCIAL AND PHYSICAL INFRASTRUCTURE

### 5.5.1 SCHOOLS

There is one school in the Komati area (Laerskool Koornfontein). The nearest secondary school (Allendale Secondary School) is 27 kilometres from Komati.

### 5.5.2 HEALTHCARE

The nearest hospital to the project location is the Impungwe Public Hospital, 30 kilometres from Komati Power Station. The nearest provincial hospital is the Middleburg Provincial Hospital, 42 kilometres from Komati in Middelburg.

### 5.5.3 WATER AND SANITATION

In the STLM, 60.8% of households have access to piped water inside dwellings, and 24.2% have access to piped water inside the yard. Community stands to provide piped water to 13.1% of households, while the remainder relies on tankers, boreholes, dams and other water sources (Urban-Econ Development Economists, 2022).

### 5.5.4 ELECTRICITY

Based on the District Municipality's IDP, the STLM's energy supply is licensed by a third party. The supply has become strained due to supply infrastructure failures and the unwillingness of coal suppliers to become long-term suppliers to Eskom. The export market is more lucrative for coal suppliers (Nkangala District Municipality, 2021).

The STLM must make efforts to address the electricity supply issues by emphasising the following (Nkangala District Municipality, 2021):

1. Partially licensed municipalities to provide electricity.
2. Municipalities are exceeding their notified maximum demand.
3. Non-payment of bulk electricity.
4. Ageing of bulk electricity Infrastructure.
5. Inadequate bulk electricity infrastructure to meet the demand.
6. Lack of operation and maintenance plan.
7. Theft of solar panels from the borehole pump station.

With the stated supply constraints, households in the STLM have good access to electricity, with 91% having access to electricity.

### 5.5.5 ACCESS TO SANITATION

Over half (51%) of NDM households have access to flush toilet facilities and 43% use pit latrines. The rest of the households rely on other types of sanitation facilities. Most STLM households (84%) have access to flush toilet facilities,9% use pit latrines, and the rest rely on other types of facilities (Urban-Econ Development Economists, 2022).

### 5.5.6 ACCESS TO WASTE REMOVAL

In contrast to the NDM, where only 40% of its population uses refuse dumps (Urban-Econ Development Economists, 2022), 84.7% of the households in the STLM have their waste removed weekly by the municipality. Only 11% of households use a refuse dump (Statistics South Africa, 2022).

### 5.5.7 TELECOMMUNICATIONS

Komati is serviced by all the major network providers in the country. It has access to 4G/LTE coverage and access to the internet via the service provider Rain.

### 5.5.8 PUBLIC TRANSPORT

The Komati area relies on taxis as the primary form of public transportation. The Middelburg District Taxi Association services the area. Buses also operate in the area but are mainly used as scholar transport.

# 6 IMPACT ASSESSMENT APPROACH

GNR 982 requires the identification of the significance of potential impacts during scoping. To this end, an impact screening tool has been used in the scoping phase impacts. The screening tool is based on two criteria: probability and consequence, where the latter is based on a general consideration of the intensity, extent, and duration.

**Table 6-1 - Significance Screening Tool**

| Probability Scale | | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| | 1 | Very Low | Very Low | Low | Medium |
| | 2 | Very Low | Low | Medium | Medium |
| | 3 | Low | Medium | Medium | High |
| | 4 | Medium | Medium | High | High |

**Table 6-2 - Probability Scores and Descriptors**

| Score | Descriptor |
|---|---|
| 4 | **Definite**: The impact will occur regardless of any prevention measures. |

| | |
|---|---|
| 3 | **Highly Probable**: It is most likely that the impact will occur. |
| 2 | **Probable**: There is a good possibility that the impact will occur. |
| 1 | **Improbable**: The possibility of the impact occurring is Very Low. |

**Table 6-3 - Consequence Score Description**

| Score | Negative | Positive |
|---|---|---|
| 4 | Very severe: An irreversible and permanent change to the affected system(s) or party(ies) which cannot be mitigated. | Very beneficial: A permanent and substantial benefit to the affected system(s) or party(ies), with no natural alternative to achieving this benefit. |
| 3 | Severe: Long-term impacts on the affected system(s) or party(ies) could be mitigated. However, this mitigation would be difficult, expensive, time-consuming, or a combination. | Beneficial: A long-term impact and substantial benefit to the affected system(s) or party(ies). Alternative ways of achieving this benefit would be difficult, expensive, time-consuming, or a combination. |
| 2 | Moderately severe: A medium to long-term impact on the affected system(s) or party (ies) that could be mitigated. | Moderately beneficial: A medium to long-term impact of real benefit to the affected system(s) or party(ies). Other ways of optimising the beneficial effects are equally as difficult, expensive, and time-consuming (or some combination of these) as achieving them in this way. |
| 1 | Negligible: A short to medium-term impact on the affected system(s) or party(ies). Mitigation is straightforward, cheap, less time-consuming and not necessary. | Negligible: A short to medium-term impact and negligible benefit to the affected system(s) or party(ies). Other ways of optimising the beneficial effects are more accessible, cheaper, and quicker, or some combination of these. |
| Significance (S) determined according to the formula: | $[S = (E + D + R + M) \times P]$<br>$Significance = (Extent + Duration + Reversibility + Magnitude) \times Probability$ | |

| IMPACT SIGNIFICANCE RATING | | | | | |
|---|---|---|---|---|---|
| Total Score | 4 to 15 | 16 to 30 | 31 to 60 | 61 to 80 | 81 to 100 |
| **Environmental Significance Rating (Negative (-))** | Very Low | Low | Moderate | High | Very High |
| **Environmental Significance Rating (Positive (+))** | Very Low | Low | Moderate | High | Very High |

The nature of the impact must be characterised as to whether the impact is deemed to be positive (+ve) (i.e. beneficial) or negative (-ve) (i.e. harmful) to the receiving environment/receptor. For ease of reference, a colour reference system. The key objectives of the risk assessment methodology are

to identify any potential social issues and associated social impacts likely to arise from the proposed project and propose a significance ranking. Issues and aspects will be reviewed and ranked against a series of significance criteria to identify and record interactions between activities, aspects, resources, and receptors to provide a detailed discussion of impacts. The assessment considers direct, indirect, secondary, and cumulative impacts.

# 7 IDENTIFICATION OF IMPACTS

Based on the collected secondary data, outcomes of the stakeholder consultation and expert knowledge, impacts were identified and categorised according to the project phase in which the impacts are likely to occur construction, operation, closure and decommissioning phases.

The Komati Solar Photovoltaic and Battery Energy Storage System has been selected based on several factors: re-purposing the Komati Power Station, solar resources, environmental constraints, readily available grid connection, site access, and land ownership. The following section analyses the social impacts of the Komati facility, including the impact of the construction, operational, and closure phases. The next section analyses the social impacts of the Komati facility.

## 7.1 CONSTRUCTION PHASE

There is a commercial farmer currently renting the property on which the project is proposed to be established. Before the development of this project, the commercial agreement for the lease of the land will come to an end. The conditions of this agreement stipulate that four months' notice must be provided to the lessee , informing them of the expiry of the lease.

### 7.1.1 ECONOMIC IMPACT

During the project's construction phase, the Construction Contractor appointed by Eskom will require various goods and services. These requirements are likely to generate economic opportunities for local businesses. The construction workforce (sourced from outside the surrounding communities) is anticipated to use local accommodations (guest houses or rental options), adding to the local economy. Provided that a significant proportion of money derived from wages earned would likely be spent in the vicinity of the project area, it is expected to create substantial revenue flows within the surrounding communities, acting as a catalyst for growth in the formal and secondary economy.

Additionally, workers from the surrounding communities are expected to spend an even more significant proportion of their wages within the local communities, further adding to the flow of revenue, including transport provision by local service providers.

Positive economic impacts also result in the improvement of informal economies. Hawkers are expected to increase in and around the construction site, and an increase in sex work is to be expected.

The assessment of this impact and its associated mitigations are included in Table 7-1 below.

**Table 7-1 - Economic impact during the construction phase**

| Potential Impact: Economic Impact | Magnitude | Extent | Reversibility | Duration | Probability | Significance | | Character |
|---|---|---|---|---|---|---|---|---|
| Without Mitigation | 1 | 2 | 1 | 3 | 2 | 14 | Very Low | (+) |
| With Mitigation | 4 | 4 | 3 | 4 | 3 | 45 | **Moderate** | (+) |
| Mitigation and Management Measures | ▪ Communities near the Project should be given special consideration regarding the benefits arising from the project, as they will be most affected.<br>▪ The principal engineer should choose appropriate subcontractors in the surrounding communities, followed by those in the municipal area and those outside the province.<br>▪ Resources required during construction should be sourced, preferably from local businesses. Accommodation needed for contractors should favour local guesthouses and hotels.<br>▪ Eskom should support development initiatives for communities in the Project area. | | | | | | | |

### 7.1.2 EMPLOYMENT

During construction, the contractor will require mostly highly skilled workers and some low-skilled employees. The labour force required is yet to be determined, however it is estimated to be between 915 and 1070 direct employees. Recruitment of labour should largely favour the local community. The introduction of this project can increase the employment rate and further allow skills development for the local community.

The assessment of this impact and its associated mitigations are included in Table 7-2 below.

**Table 7-2 - Impact of employment during the construction phase**

| Potential Impact: Employment | Magnitude | Extent | Reversibility | Duration | Probability | Significance | | Character |
|---|---|---|---|---|---|---|---|---|
| Without Mitigation | 2 | 3 | 2 | 3 | 2 | 20 | Low | (+) |
| With Mitigation | 4 | 3 | 3 | 4 | 4 | 56 | Moderate | (+) |
| Mitigation and Management Measures | ▪ Recruitment policies must ensure preference for residents. Additionally, a monitoring system should be implemented to assess local employment levels. A local skills database | | | | | | | |

| | |
|---|---|
| | should be developed and updated regularly to maximise the uptake of local labour.<br>▪ A detailed HR and OHS system by the Project developer and its partners as the Project moves towards implementation will be developed.<br>▪ Labour and contract conditions compliance with national legislation will be monitored by the EPC contractor and department of labour. |

### 7.1.3 INTRUSIVE IMPACTS

#### 7.1.3.1 Noise

During construction, noise affects people differently; the new noise will come from the site. The site is located around residential areas. Existing noise sources in the vicinity of the proposed project include:

- Agricultural activities mostly from maise and livestock.
- Vehicles along the R35, R542, nearby Goedehoop Colliery and internal Komati power station roads.
- Mining activities from the nearby Goedehoop Colliery.
- Industrial activities from the Komati Power Station.

Sensitive receptors are identified as areas that may be impacted negatively due to noise associated with the proposed project. Examples of receptors include, but are not limited to, schools, shopping centres, hospitals, office blocks and residential areas. The site layout and receptors are presented in .

**Table 7-3** and **Figure 7-1.**

**Table 7-3 - Sensitive receptors within a 5 km radius of the proposed project**

| ID | Sensitive Receptor Name | Latitude (s) | Longitude (E) | Distance from site boundary (KM) | Direction from site |
|---|---|---|---|---|---|
| SR1 | Komati Village | 26° 5’46.52" | 29°27'37.62" | Within the boundary | |
| SR2 | Residential Area 1 | 26° 4’9.85" | 29°25'16.62" | 3.7 | Northwest |
| SR3 | Residential Area 2 | 26° 5’14.28" | 29°26'18.46" | 1.2 | Northwest |
| SR4 | Residential Area 3 | 26° 5’24.70" | 29°26'47.50" | 0.4 | Northwest |


**Figure 7-1 - Site layout and sensitive receptors for the proposed project**

The assessment of this impact and its associated mitigations are included in Table 7-4 below.

**Table 7-4 - Impact of noise during the construction phase**

| Potential Impact: Noise | Magnitude | Extent | Reversibility | Duration | Probability | Significance | | Character |
|---|---|---|---|---|---|---|---|---|
| Without Mitigation | 2 | 2 | 2 | 2 | 2 | 16 | Low | (-) |
| With Mitigation | 1 | 2 | 2 | 1 | 2 | 12 | Very Low | (-) |
| Mitigation and Management Measures | ▪ Consulting with the community when planning construction activities to have the least intrusive impact, i.e. scheduling high-noise activities when they result in the least disturbance. Such as during the day. Information regarding construction activities should be provided to identified and | | | | | | | |

| | |
|---|---|
| | nearby receptors likely to be affected. Such information includes:<br>a) Proposed working times.<br>b) Anticipated duration of activities.<br>c) Explanations of activities to take place and reasons for activities.<br>d) Contact details of a responsible person on site should complaints arise. |

#### 7.1.3.2 Dust

Identification of Sensitive Receptors

**Table 7-5** presents the sensitive receptors within the surrounding environment. Sensitive receptors are defined by the United States Environmental Protection Agency (USEPA) as areas where occupants are more susceptible to the adverse effects of exposure to pollutants. These areas include but are not limited to residential areas, hospitals/clinics, schools and daycare facilities and elderly housing. The site layout and receptors are presented in Figure 7-2.

**Table 7-5 - Sensitive receptors within a 10 km radius of the proposed project**

| ID. | Sensitive Receptor Name | Latitude (S) | Longitude (E) | Distance from Site Boundary (km) | Direction from Site |
|---|---|---|---|---|---|
| **SR1** | Komati Village | 26° 5'46.52" | 29°27'37.62" | Within the boundary | |
| **SR2** | Residential Area 1 | 26° 8'37.05" | 29°32'5.14" | 7.3 | Southeast |
| **SR3** | Residential Area 2 | 26° 4'9.85" | 29°25'16.62" | 3.7 | Northwest |
| **SR4** | Residential Area 3 | 26° 5'14.28" | 29°26'18.46" | 1.2 | Northwest |
| **SR5** | Residential Area 4 | 26° 5'24.70" | 29°26'47.50" | 0.4 | Northwest |
| **SR6** | Residential Area 5 | 26° 2'5.40" | 29°31'6.68" | 7.2 | Northeast |

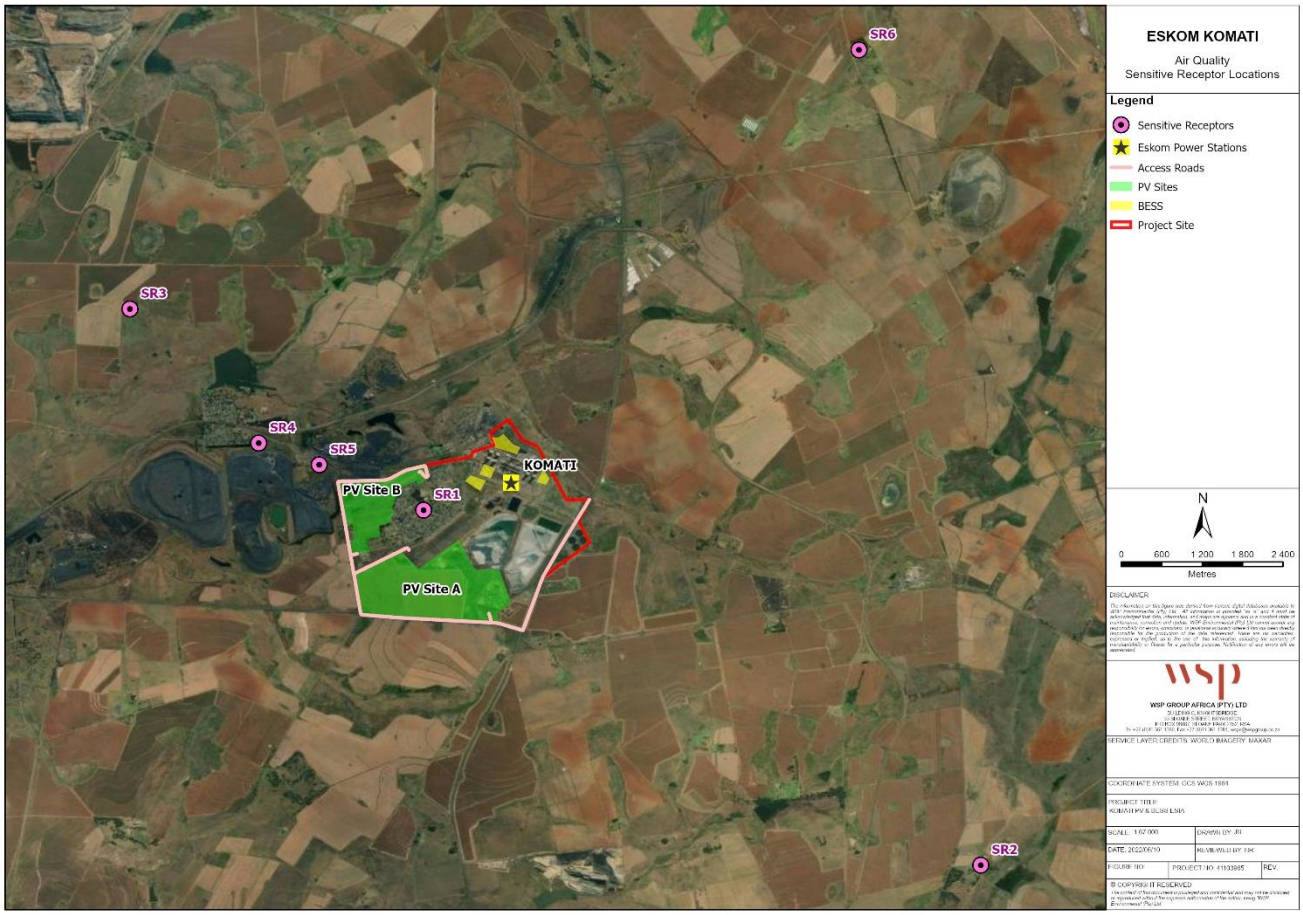



**Figure 7-2 - Site layout and sensitive receptors for the proposed project**

Local Wind Field

Wind roses summarise wind speed and directional frequency at a location. Calm conditions are defined as wind speeds less than 1.0 m/s. Each directional branch on a wind rose represents wind originating from that direction. Each directional branch is divided into segments of colour, each representative of different wind speeds.

Typical wind fields are analysed for the entire period (January to December 2018), diurnally for early morning (00h00–06h00), morning (06h00–12h00), afternoon (12h00–18h00) and evening (18h00–23h00); and seasonally for summer (December, January and February), autumn (March, April and May), winter (June, July and August) and Spring (September, October and November).

Wind roses from the Komati meteorological station are presented in **Figure 7-3** and are further discussed below.

- During the January to December 2018 period, light to strong north-north-easterly and westerly winds prevailed in the region (calm conditions occurring 17 % of the time), with average wind speeds of 2.7 m/s expected.
- During the early morning hours (00h00-06h00), north-north-easterly, north-north-westerly, north and north-westerly winds prevail.
- Towards the latter morning (06h00-12h00) hours, a shift in winds is experienced with dominant winds from the west.

- In the afternoon (12h00-18h00), the westerly wind prevails.
- During the night (18h00-00h00), the north-north-easterly wind prevails yet again.
- The highest winds are experienced during the 12h00-18h00 period.
- Winds from the north-north-easterly prevail during the summer and autumn, while the winter and spring months show great directional variability. Additionally, winter and spring experience the strongest winds.

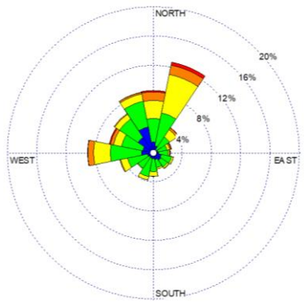
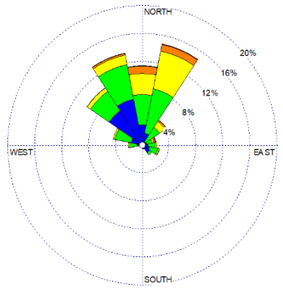
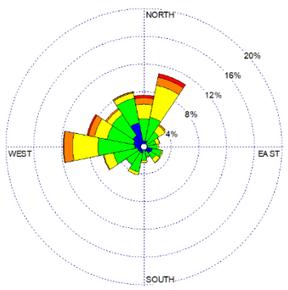
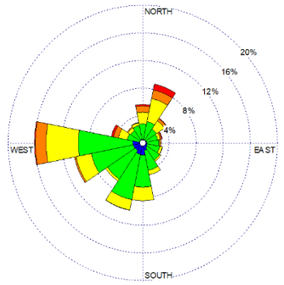
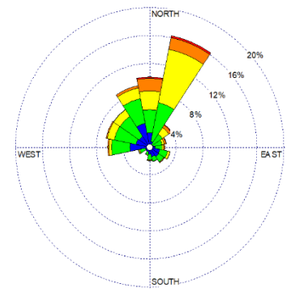
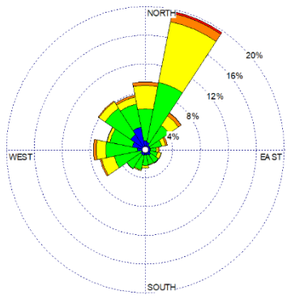
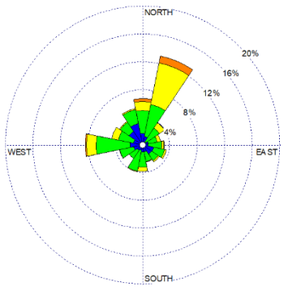
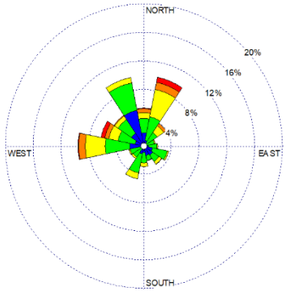
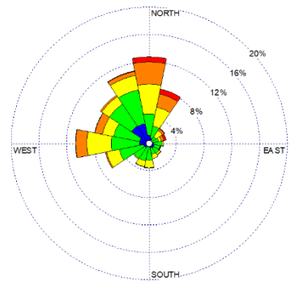
| Komati | Diurnal | | | |
|---|---|---|---|---|
| January to December 2018 | 00h00 – 06h00 | 06h00 – 12h00 | 12h00 – 18h00 | 18h00 – 00h00 |
|  Calms = 16.99% |  Calms = 29.12% |  Calms = 14.91% |  Calms = 1.96% |  Calms = 22.43% |
| **Seasonal** | | | | |
| Summer | Autumn | Winter | Spring | |
|  Calms = 7.27% |  Calms = 25.00% |  Calms = 24.73% |  Calms = 10.67% | |

**Figure 7-3 - Local wind conditions for the period January to December 2018 from the Komati station (SAAQIS)**

Existing air pollution sources in the vicinity of the proposed project include:

- Agricultural activities mostly from maise and livestock.
- Vehicle emissions are from the R35, R542, nearby Goedehoop Colliery, and internal Komati power station roads.
- Mining activities from the nearby Goedehoop Colliery.
- Industrial activities from the Komati Power Station.
- Domestic fuel burning from the Komati Village and nearby residential areas.
- Dust from unpaved roads from the nearby Goedehoop Colliery.
- Other fugitive dust sources such as wind erosion of exposed areas.

Background concentrations for particulate matter (i.e., particle size of aerodynamic diameter of less than 10 and 2.5 microns ($PM_{10}$ and $PM_{2.5}$)) were also sourced from the SAAQIS for the Komati station to evaluate the current situation within the receiving environment. The best recovery period over the last five years, namely January to December 2018, was utilised. Annual averages for $PM_{10}$ and $PM_{2.5}$ were 62.7 µg/m$^3$ (above the annual average $PM_{10}$ standard of 40 µg/m3) and 6.5 µg/m$^3$, respectively (below the annual average $PM_{2.5}$ standard of 20 µg/m$^3$). The high existing sources of emissions for $PM_{10}$ are likely a result of the abovementioned sources. However, it must be noted that the background concentrations are likely to decrease substantially once the Komati Power Station is fully decommissioned, possibly resulting in compliance with the annual average $PM_{10}$ standard of 40 µg/m$^3$. Further, the data recovery for $PM_{10}$ and $PM_{2.5}$ was 82% and 85%, respectively, slightly below the recommended data recovery of 90% for the dataset to be deemed reliable.

It is estimated that approximately 200-300 construction workers will be required on the site for this phase. During the construction phase of the proposed project, the following activities are anticipated:

- Site Preparation: Vegetation and topsoil will be cleared for the footprint of the infrastructure and the access roads to the Solar PV site, internal roads, the laydown yard, etc. The topsoil removed will need to be stored for rehabilitation purposes of the site.
- Transportation of Equipment: All equipment will be transported to the site utilising national, provincial and district roads. This includes, but is not limited to, transformers, Solar PV modules, inverters, excavators, graders, trucks, compacting equipment, construction material, etc.
- Site Establishment Works: The site will have temporary laydown areas and offices for the construction contractors. This will include the contractor's chosen electricity supply infrastructure, e.g., the use of generators and fuel storage, which will be required to conform to acceptable measures to ensure no environmental harm. The laydown area will also be used to assemble Solar PV modules and structures. A concrete batching plant may also be required for the site establishment works.
- Construction of the Solar PV Facility: Trenches must be excavated for underground cabling to connect Solar PV arrays, inverter stations, and combiner substations. Foundations for the Solar PV array mounting structures and inverter stations may need to be excavated, with the final extent depending on the geotechnical studies that will be conducted. The geotechnical studies will determine the type of foundations that can be utilised at the PV site. Construction of access, perimeter, and internal gravel roads may require material from a permitted quarry to be imported from outside the site.

- Construction of Electrical Interconnection Line: Construction and installation of overhead electrical interconnection lines, connecting the Solar PV facilities to the grid PoC.
- Storage: Storage of diesel and oil for construction activities.

Heavy construction activities are a source of dust and $PM_{10}$ and $PM_{2.5}$ emissions that can adversely impact the local ambient air quality temporarily. Dust and particulate emissions vary substantially daily, depending on the activity level, the specific operations and the prevailing meteorological conditions (USEPA, 1995).

With dominant north-north-easterly winds in the project region, as **Figure 7-3**shows, air quality impacts are predicted to be the greatest at SR1 (Komati Village). Receptors SR4 and SR5 are relatively close to the proposed site and likely to be impacted. Although receptors SR2, SR3 and SR6 are within a 10 km radius of the proposed site, they are unlikely to be impacted significantly, given the distance and dominant wind directions to the proposed project site. Notably, the necessary mitigation measures must be implemented during construction to reduce impacts at all nearby receptors, particularly the Komati Village, SR4 and SR5. Furthermore, it must be noted that emissions from construction activities are highly uncertain due to the site-specific and erratic nature of construction activities. The construction phase is also expected to occur during daytime hours only and is considered limited and short-lived to the local project site area.

The construction of facilities will result in traffic as resources are being transported due to increased heavy vehicle presence. Increased road traffic and cleared vegetation for site establishment and construction activities will increase the dust levels in the area.

The assessment of this impact and its associated mitigations are included in Table 7-6.

**Table 7-6 - Impact of dust during the construction phase**

| Potential Impact: Dust | Magnitude | Extent | Reversibility | Duration | Probability | Significance | | Character |
|---|---|---|---|---|---|---|---|---|
| Without Mitigation | 2 | 3 | 3 | 1 | 4 | 36 | Moderate | (-) |
| With Mitigation | 2 | 3 | 2 | 3 | 2 | 20 | Low | (-) |
| Mitigation and Management Measures | ▪ Implement environmentally friendly dust suppression measures on unpaved road surfaces.<br>▪ A community awareness campaign must be implemented in the surrounding communities to sensitise community members to traffic safety risks and health and communicable disease awareness.<br>▪ Roads must be adequately maintained to prevent deterioration of road surfaces due to heavy vehicle traffic and the introduction of another point source for dust. | | | | | | | |

### 7.1.4 POPULATION INFLUX

There is a high probability that the project announcement could result in an influx of people seeking employment opportunities, given the 16.4% unemployment rate in the Steve Tshwete Local Municipality (Steve Tshwete Local Municipality, 2016). The project will create approximately 1100 jobs during construction, some of which are likely to be filled by the existing Eskom workforce. The influx is expected to be low but must still be managed. The general labour is expected to be sourced from the surrounding communities, and installing solar panels is expected to be undertaken mainly through skilled individuals.

The influx of labour could result in the development of informal dwellings and possibly informal settlements in the area. It is unlikely that all these people will be employed during construction, thus resulting in increased unemployment. The increased number of unemployed people mainly single men may lead to increased social ills such as crime, alcohol abuse, gender-based violence, etc., increasing pressure on local resources, infrastructure and social services. It is possible to mitigate the impact, however it is unlikely to be completely eradicated.

Construction activities can also take much longer than initially planned at the beginning of a project. This can result in extended stays away from home for the labourers, generally men, which may lead to increased prostitution. An increase of prostitution may correlate with an increase in SEA/SH instances in the area due to the hidden nature of the activities posing  a risk for local women and girls

The assessment of this impact and its associated mitigations are included in Table 7-7 below.

**Table 7-7 - Impact of population influx during the construction phase**

| Potential Impact: Population influx | Magnitude | Extent | Reversibility | Duration | Probability | Significance | | Character |
|---|---|---|---|---|---|---|---|---|
| Without Mitigation | 3 | 3 | 2 | 3 | 3 | 33 | Moderate | (-) |
| With Mitigation | 2 | 2 | 1 | 2 | 2 | 14 | Very Low | (-) |
| Mitigation and Management Measures | ▪ A community awareness campaign to be implemented in the surrounding communities to sensitise community members to communicable disease awareness<br>▪ As part of onboarding workers, training should be provided on preventing GBV SEA and SH and included in the code of conduct for all employees.<br>▪ A SEA/SH risk assessment for the Project and the SEA/SH Action Plan should be prepared if the risk is high.<br>▪ Eskom should establish a grievance redress mechanism that allows for the addressing of SEA and SH matters. The grievance mechanism should allow for anonymous lodging of SEA and SH grievances. Ensuring that victims can report confidentially and without fear of retaliation.<br>▪ Victims of SEA and SH will be referred to organisations which can provide support. If the incidents are Project | | | | | | | |

| | |
|---|---|
| | related the Project will pay for any councilig or other support the victim might need.<br>▪ The Komati Power Station Component C Projects Environmental and Social Management Plan contains a Code of Conduct that states that all employees should ot engage in any illegal or unwanted sexual behaviour ().<br>▪ Eskom must engage with communities using a dedicated community liaison officer and have an effective stakeholder engagement plan, including a grievance redress mechanism for communities to access and lodge complaints.<br>▪ Local employment should be a priority for the construction contractor. Training programmes must be implemented to enable local participants to take advantage of employment opportunities.<br>▪ No recruitment should occur at the Project gate to prevent informal settlements around the Project site.<br>▪ Increased security in the Project area should be provided to regulate access to the site and prevent informal settlements.<br>▪ A detailed influx management plan should be developed or implemented and include the possible use of temporary labour camps if required.<br>▪ The Project should work with the local municipality to prevent the formation of informal settlements. |

### 7.1.5 VULNERABLE GROUPS

Vulnerable groups include the economically disadvantaged, racial and ethnic minorities, the uninsured, low-income households, children, the elderly, the homeless, those with HIV, and those with other chronic health conditions, including severe mental illness and indigenous people. The following are the potentially vulnerable in the project affected area:

- Women: a woman's accesses to resources (physical and financial) are restricted due to traditional and cultural practices. Women were identified to have low representation in community level decision making;
- Women: are also vulnerable to exposure to SE/SH and GBV.
- Single-headed Households, including female and child-headed households: Single headed households are identified as households where the head of the household is both the primary income source as well as the caregiver. This group is particularly vulnerable due to reduced access to income generating opportunities and higher levels of food insecurity;
- Elderly: The elderly within the community are less likely to receive an income and are reliant upon other members of a household. It should be noted that elder men have an elevated status and play a prominent role in traditional institutions and community level decision making;
- Children: Children are mainly reliant upon older members of the household to access resources and for the maintenance of their general wellbeing;
- Child Headed households: Child Headed Households are identified as the most vulnerable group as children are dependants, and not providers, such households are often incapable of generating adequate income or providing the care or protection that parents traditionally provide;
- Households with low income; and

- People with Physical / Mental Health Illnesses and Disabilities: The project area has no institutional systems or services to encourage the economic and social participation of disabled stakeholders in the community.

Additionally, Urban-Econ identified the following vulnerable groups as part of their Socio-Economic Impact Study (Urban-Econ Development Economists):

- Women and the elderly;
- Minority groups;
- Child-headed households;
- Disabled individuals and
- Unskilled/illiterate individuals.

**Table 7-8 - Impact on vulnerable groups during the construction phase**

| Potential Impact: Vulnerable Groups | Magnitude | Extent | Reversibility | Duration | Probability | Significance | | Character |
|---|---|---|---|---|---|---|---|---|
| Without Mitigation | 2 | 1 | 2 | 4 | 1 | 9 | Very Low | (+) |
| With Mitigation | 2 | 1 | 1 | 4 | 3 | 24 | Low | (+) |
| Mitigation and Management Measures | ▪ Assisting vulnerable households to access social service assistance networks.<br>▪ Providing skills training and capacity building to enable the vulnerable to start their own business or obtain better jobs.<br>▪ Ensure the project supports equal employment opportunities.<br>▪ The project must assist vulnerable households to access benefits from the project by providing vulnerable groups equal access to employment and the Component C projects.<br>▪ The Project must provide women with a safe place to work.<br>▪ Instances related to SH/SE and GBV perpetrated by the Project workforce must be dealt with immediately by instating disciplinary procedures.<br>▪ The Project must be designed to enable those with disabilities can access the Project infustucture should they need to do so by including design features such as ramps, wider doorways, passages and features for the visually impaired. | | | | | | | |

### 7.1.6 CONSTRUCTION PHASE – IMPACT SUMMARY

**Table 7-9** - Ratings of impacts during the construction phase

| Aspect | Character | Pre-Mitigation | | | | | | | Post-Mitigation | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (M+ | E+ | R+ | D)x | P= | S | Rating | (M+ | E+ | R+ | D)x | P= | S | Rating |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Economic Impact | positive | 1 | 2 | 1 | 3 | 2 | **14** | **P1** | 4 | 4 | 3 | 4 | 3 | **45** | **P3** |
| | | **P1 - Very Low** | | | | | | | **P3 - Moderate** | | | | | | |
| Employment | positive | 2 | 3 | 2 | 3 | 2 | **20** | **P2** | 4 | 3 | 3 | 4 | 4 | **56** | **P3** |
| | | **P2 - Low** | | | | | | | **P3 - Moderate** | | | | | | |
| Noise | negative | 2 | 2 | 2 | 2 | 2 | **16** | **N2** | 1 | 2 | 2 | 1 | 2 | **12** | **N1** |
| | | **N2 - Low** | | | | | | | **N1 - Very Low** | | | | | | |
| Dust | negative | 2 | 3 | 3 | 1 | 4 | **36** | **N3** | 2 | 3 | 2 | 3 | 2 | **20** | **N2** |
| | | **N3 - Moderate** | | | | | | | **N2 - Low** | | | | | | |
| Population Influx | negative | 3 | 3 | 2 | 3 | 3 | **33** | **N3** | 2 | 2 | 1 | 2 | 2 | **14** | **N1** |
| | | **N3 - Moderate** | | | | | | | **N1 - Very Low** | | | | | | |
| Vulnerable Groups | positive | **2** | **1** | **2** | **4** | **1** | **9** | **P1** | **2** | **1** | **1** | **4** | **3** | **24** | **P2** |
| | | **P1 - Very Low** | | | | | | | **P2 - Low** | | | | | | |

## 7.2 OPERATIONAL PHASE

### 7.2.1 LOW CARBON POWER GENERATION

The Just Energy Transition's vision is to achieve Net Zero carbon emissions by 2050. The facility will produce no waste or emissions during the operational phase. South Africa's per capita greenhouse emissions are the highest in Africa (Jainb, 2017). Thus, this project will aid in reducing South Africa's carbon footprint and emissions.

The assessment of this impact and its associated mitigations are included in Table 7-10 below.

**Table 7-10 - Impact of low carbon power generation during the operational phase**

| **Potential Impact: Low Carbon Generation** | **Magnitude** | **Extent** | **Reversibility** | **Duration** | **Probability** | **Significance** | | **Character** |
|---|---|---|---|---|---|---|---|---|
| Without Mitigation | 1 | 2 | 3 | 4 | 2 | 20 | Low | (+) |
| With Mitigation | 4 | 3 | 3 | 4 | 4 | 56 | Moderate | (+) |
| Mitigation and Management Measures | ▪ Ensuring that the power generated from the proposed project provides for the country's homes, farms and businesses.<br>▪ The proposed project should be used to encourage more renewable sources of energy that are more environmentally friendly to other municipalities and provinces across South Africa.<br>▪ Record and publish the economic benefit or development of the Komati Power Station PV facility to the regional and national economy to encourage more renewable energy sources for South Africa. | | | | | | | |

### 7.2.2 EMPLOYMENT OPPORTUNITIES

The maintenance of the facility and the functioning of the facility will create approximately 150 long-term employment opportunities. It is assumed that unskilled labour will be sourced from the local community and skilled labour will be sourced from the local community as far as possible. The proposed project will aid in solving two of the leading challenges faced by most municipalities in the country, namely the need for electricity and the lack of adequate employment opportunities.

The assessment of this impact and its associated mitigations are included in Table 7-11 below.

**Table 7-11 - Impact of employment opportunities during the operational phase**

| Potential Impact: Employment Opportunities | Magnitude | Extent | Reversibility | Duration | Probability | Significance | | Character |
|---|---|---|---|---|---|---|---|---|
| Without Mitigation | 3 | 4 | 3 | 5 | 2 | 30 | Low | (+) |
| With Mitigation | 4 | 4 | 4 | 5 | 4 | 68 | High | (+) |
| Mitigation and Management Measures | ▪ During the operational phase, locally employed individuals should receive training and undergo skills development programmes.<br>▪ Employees should be allowed to participate in mentorship programmes to further their development.<br>▪ The Project will monitor labour and contract conditions compliance with national legislation and with the Labour Management Plan which will be prepared for the Project. | | | | | | | |

### 7.2.3 OPERATIONAL PHASE – IMPACT SUMMARY

**Table 7-12 - Ratings of impacts during the operational phase**

| Receptor | Character | Pre-Mitigation | | | | | | | Post-Mitigation | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (M+ | E+ | R+ | D)x | P= | S | | (M+ | E+ | R+ | D)x | P= | S | |
| Low Carbon Power Generation | positive | 1 | 2 | 3 | 4 | 2 | 20 | P2 | 4 | 3 | 3 | 4 | 4 | 56 | P3 |
| **Significance** | | P2 - Low | | | | | | | P3 - Moderate | | | | | | |
| Employment Opportunities | positive | 3 | 4 | 3 | 5 | 2 | 30 | P2 | 4 | 4 | 4 | 5 | 4 | 68 | P4 |
| **Significance** | | P2 - Low | | | | | | | P4 - High | | | | | | |

## 7.3 DECOMMISSIONING AND CLOSURE PHASE

### 7.3.1 LOSS OF EMPLOYMENT

During this phase, the operational workforce will lose their jobs, and it may lead to adverse social consequences in the municipality and labour-sending areas such as:

- Increase or return the unemployment rate to previous levels within the project area.
- Financial hardship.
- Family tensions and breakdown.
- Alienation, shame and stigma.
- Crime.

The assessment of this impact and its associated mitigations are included in Table 7-13 below.

**Table 7-13 - Impact of loss of employment during the decommissioning phase**

| Potential Impact: Loss of employment | Magnitude | Extent | Reversibility | Duration | Probability | Significance | | Character |
|---|---|---|---|---|---|---|---|---|
| Without Mitigation | 4 | 4 | 3 | 4 | 3 | 45 | Moderate | (-) |
| With Mitigation | 2 | 1 | 2 | 4 | 3 | 27 | Low | (-) |
| Mitigation and Management Measures | ▪ Timely and adequate consultation with employees dependent on the project for employment.<br>▪ Assisting employees seeking alternative employment at other power plants or related facilities.<br>▪ Training and educating employees to equip them with skills that could benefit them in other industries. | | | | | | | |

### 7.3.2 REDUCED COMMUNITY INVESTMENT

There will be reduced local spending by Eskom and its staff and contractors. Consequently, local business revenue may be affected, and tax payments will decrease.

The assessment of this impact and its associated mitigations are included in Table 7-14 below.

**Table 7-14 - Impact of reduced community investment during the decommissioning phase**

| Potential Impact: Reduced community investment | Magnitude | Extent | Reversibility | Duration | Probability | Significance | | Character |
|---|---|---|---|---|---|---|---|---|
| Without Mitigation | 3 | 4 | 3 | 3 | 3 | 39 | Moderate | (-) |
| With Mitigation | 2 | 1 | 2 | 4 | 3 | 27 | Low | (-) |
| Mitigation and Management Measures | ▪ Engage local and regional government concerning the decommissioning phase. | | | | | | | |

| | |
|---|---|
| | ▪ Develop alternative projects which can support the local economy. |

### 7.3.3 ASSOCIATED INFRASTRUCTURE

Structures used during construction and operation will be abandoned and might attract criminals. Maintenance of these structures might decrease after the project's operation, leading to hazards to the health and welfare of the community. The batteries/equipment may have reached the end-of-life and may leak.

The assessment of this impact and its associated mitigations are included in Table 7-15 below.

**Table 7-15 - Impact of the ancillary infrastructure during the decommissioning phase**

| Potential Impact: Ancillary infrastructure | Magnitude | Extent | Reversibility | Duration | Probability | Significance | | Character |
|---|---|---|---|---|---|---|---|---|
| Without Mitigation | 3 | 3 | 3 | 3 | 4 | 48 | Moderate | (-) |
| With Mitigation | 2 | 2 | 1 | 3 | 2 | 16 | Low | (-) |
| Mitigation and Management Measures | ▪ End-of-Life shutdown procedure must be undertaken, including a risk assessment of the activities involved.<br>▪ Where possible, re-purpose the solid-state batteries/containers and equipment with the associated environmental impact considered.<br>▪ Disposal according to local regulations and other directives such as the European Batteries Directive.<br>▪ End-of-life, which is affected by temperature and time, cycles, etc., should be predefined, and monitoring should be in place to determine if it has been reached.<br>▪ Eskom shall develop exit strategies for all its community development initiatives. | | | | | | | |

### 7.3.4 DECOMMISSIONING AND CLOSURE PHASE – IMPACT SUMMARY

**Table 7-16 - Ratings of impacts during the decommissioning phase**

| Receptor | Character | Pre-Mitigation | | | | | | | Post-Mitigation | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (M+ | E+ | R+ | D)x | P= | S | | (M+ | E+ | R+ | D)x | P= | S | |
| Loss of Employment | negative | 4 | 4 | 3 | 4 | 3 | **45** | **N3** | 2 | 1 | 2 | 4 | 3 | **27** | **N2** |
| **Significance** | | **N3 - Moderate** | | | | | | | **N2 - Low** | | | | | | |
| Reduced Community Investment | negative | 3 | 4 | 3 | 3 | 3 | **39** | **N3** | 2 | 1 | 2 | 4 | 3 | **27** | **N2** |
| **Significance** | | **N3 - Moderate** | | | | | | | **N2 - Low** | | | | | | |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Associated Infrastructure | negative | 3 | 3 | 3 | 3 | 4 | **48** | **N3** | 2 | 2 | 1 | 3 | 2 | **16** | **N2** |
| **Significance** | | **N3 - Moderate** | | | | | | | **N2 - Low** | | | | | | |

# 8 CUMULATIVE IMPACTS

With the country's need for stable electricity growing constantly, it is envisioned that similar renewable energy projects will be proposed in the surrounding area, aiming to use the energy grid infrastructure at the Komati Power Station.

Two similar projects are located within 30 km of the proposed project, namely the proposed installation of a solar photovoltaic power plant at the Eskom Duvha Power Station and the proposed Forzando North Coal Mine photovoltaic solar facility.

The Duvha Power Station is located approximately 20 km from the proposed Komati site. Given the location of the Duvha solar facility, it is envisioned that the infrastructure associated with connecting the facility to the power grid will loop into the current infrastructure at the Duvha Power Station.

The impacts of this project on the Duvha community are likely similar to the ones discussed in this study for the Komati Solar Photovoltaic and Battery Energy Storage System project. The anticipated cumulative social impact is expected to be low.

The proposed Forzando North Coal Mine solar facility will be located at one of two alternative locations, approximately 15 km and 18 km away, respectively. Alternative 1 is situated between the Komati Power Station (about 15km away) and the Kriel and Matla Power Stations, approximately 18 km and 23 km from the proposed project, respectively. It is assumed that the proposed project will connect to the national electricity grid at the Komati Power Station as it is closest.

The cumulative impact of these projects will be because of the powerlines lines looping into the Komati Power Station. Given the numerous powerlines currently emanating from the Power Station, the anticipated social impact of these projects is expected to be low.

**Table 8-1 - Ratings of cumulative impacts**

| Receptor | Character | (M+ | E+ | R+ | D)x | P= | S | |
|---|---|---|---|---|---|---|---|---|
| Cumulative Impact | negative | **2** | **2** | **2** | **4** | **2** | **20** | |
| **Significance** | | | | | | | | |

# 9 CONCLUSION

The development of the proposed Komati Solar Photovoltaic and Battery Energy Storage System aligns with legislative and policy frameworks. The project will create employment, training, and

business opportunities during the construction and operation. As detailed above, the potential negative impacts of the construction and operation phases can be mitigated.

The proposed development will also represent an investment in clean, renewable energy infrastructure for the country, which will go some way to offset the negative environmental and socio-economic impacts associated with coal-based fossil fuel energy generation. Renewable energy also addresses climate change and assists the country in meeting its climate change reduction goals.

Some unfavourable impacts have been rated as highly negative and significant. Other impacts on the construction, operation, and decommissioning phases have been rated as medium negative and medium positive, respectively. As shown in Table 9-1 below, if mitigation measures are implemented, it is anticipated that the consequence and probability of the negative impacts will be reduced. Given the above, it is strongly recommended that the mitigation measures described in this report be incorporated into the proposed project's Environmental and Social Management Plan. Additionally, measures must be put in place to monitor and assess the implementation of these mitigation measures and take corrective action where necessary.

**Table 9-1 - Summary of impact ratings**

| Impact | Pre-mitigation | Post-Mitigation |
|---|---|---|
| **Construction Phase** | | |
| Economic Impact | P1 - Very Low | P3 - Moderate |
| Employment | P2 - Low | P3 - Moderate |
| Noise | N2 - Low | N1 - Very Low |
| Dust | N3 - Moderate | N2 - Low |
| Population Influx | N3 - Moderate | N1 - Very Low |
| Vulnerable Groups | P1 - Very Low | P2 - Low |
| **Operation Phase** | | |
| Low Carbon Power Generation | P2 - Low | P3 - Moderate |
| Employment Opportunities | P2 - Low | P3 - Moderate |
| **Closure Phase** | | |
| Loss of Employment | N3 - Moderate | N2 - Low |
| Reduced Community Investment | N3 - Moderate | N2 - Low |

| Impact | Pre-mitigation | Post-Mitigation |
|---|---|---|
| Associated Infrastructure | **N3 - Moderate** | **N2 - Low** |

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# Appendix A

## KOMATI POWER STATION COMPONENT C PROJECTS ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

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