SOCIAL IMPACT ASSESSMENT

FOR THE PROPOSED DEVELOPMENT OF THE GROMIS-NAMA-AGGENEIS 400 KV IPP INTEGRATION, SPRINGBOK, NORTHERN CAPE PROVINCE

July 2020

PREPARED FOR:

Eskom

PREPARED BY:

Enviroworks

Block B2, Edison Square,
c/o Century Avenue & Edison Way
Century City, 7446

Tel. 021 527 7084
elbi@enviroworks.co.za;
michael@enviroworks.co.za

EXECUTIVE SUMMARY

INTRODUCTION

Enviroworks was appointed by Eskom Holdings SOC Ltd (The Proponent), to undertake a Socio-Economic Impact Assessment for a proposed new power line from Gromis substation via Nama substation towards Aggeneis[1] substation in the Northern Cape Province.

The Socio-Economic Impact Assessment has been split into two separate reports namely a Social Impact Assessment (SIA) and an Economic Impact Assessment. The findings of these two reports will be combined into a summarised Socio-Economic Report.

The development of the power line has been proposed in order to provide the necessary grid capacity to facilitate the integration of Independent Power Producers (IPPs) and increase stability of the Electrical Grid Infrastructure (EGI), ensuring that the Namaqualand network can distribute electricity to present and future users. The proposed power line will thus facilitate the establishment of further IPP developments in the Namaqualand area.

The proposed power line will traverse approximately 165 km, primarily across farmland in the Namakwa District Municipality and Khâi- Ma Local Municipality, situated in the Namakwa District Municipality, Northern Cape Province.

In order to determine the potential impacts on the directly affected communities and surrounding communities, a SIA study was commissioned. This SIA will form part of the Screening Assessment process conducted by Enviroworks for the proposed Gromis-Nama-Aggeneis power line. Government Gazette 41445, Government Notice 113, gazetted on 16 February 2018, provides alternative procedures to be followed when applying for Environmental Authorisation for such transmission and distribution developments. The Screening Assessment will determine the best route alternative which Eskom will use to enter negotiations with landowners prior to applying for Environmental Authorisation, as required by GN. 113.

Although not required, the Public Participation Process (PPP) conducted for this report was conducted as per the Environmental Impact Assessment Regulations, 2014, of the National Environmental Management Act (NEMA) (Act 107 of 1998), with the view of using the PPP as a form of Pre- Application PPP in the next phase, namely the Basic Assessment Process.

[1] The spelling “Aggeneis” refers to the substation, whereas the spelling “Aggeneys” refers to the town. Aggeneis substation is situated approximately seven kilometres (7km) south-west of the town of Aggeneys.

This SIA aims to determine and assess the social impacts that may be incurred as a result of constructing the proposed power line. The report will also provide mitigation measures to improve positive impacts and reduce mitigate negative impacts.

Report Structure

The report is divided into five sections, namely:

- Section 1: Introduction
- Section 2: Policy and Planning Environment
- Section 3: Overview of the Study area
- Section 4: Consultation Process
- Section 5: Key Social Issues
- Section 6: Assessment of Impacts
- Section 7: Key Findings and Recommendations.

LOCATION AND PROJECT DESCRIPTION

The Proponent proposes to develop a new power line from Gromis substation via Nama substation towards Aggeneis substation in the Northern Cape Province.

In order to ensure that the Namaqualand network is compliant and that there is sufficient line capacity to accommodate potential Independent Power Producers (IPPs) within the Namaqualand area, the construction of the new Gromis-Nama-Aggeneis 400 kilovolt (kV) line and establishment of a 400/132 kV yard at Nama substation is proposed. The Screening Assessment aims to determine possible route alternatives for the proposed new power line and then to assess these alternatives. Based on the findings, the assessment will propose the best route alternative. Eskom will then use the best route and begin negotiations with landowners. Following this the pre-negotiated route will be assessed in detail during a Basic Assessment Process. During the Basic Assessment process a formal application will be lodged for the necessary Environmental Authorisation to construct the powerline.

Strategic Environmental Assessment for Strategic Electrical Grid Infrastructure Corridors

In 2016 a Strategic Environmental Assessment (SEA) was undertaken by CSIR. The purpose of the SEA was to identify strategic Electricity Grid Infrastructure (EGI) Corridors to support electricity transmission up to 2040. The vision for the Strategic EGI was to expand in an environmentally responsible and efficient manner that effectively meets the country's economic and social development needs.

The final EGI Power Corridors assessed as part of the 2016 EGI Strategic SEA were gazetted for implementation on 16 February 2018 in Government Gazette 41445, Government Notice R.113.

One of these corridors, was the Northern Corridor – Please see Figure 1 for the Gazzetted Corridors. The proposed new power line will be constructed within the Northern Corridor.

Project Description

The proposed development would consist of the following:

- Development of a 400 Kilovolt (kV) power line;
- Development of pylon structures to support the power lines. Pylons will be spaced approximately four hundred and sixty metres (460m) apart on average.
- The Nama substation will be expanded to a 400/132 kV yard.

ALTERNATIVES

During the initial site visit, four (4) different route Alternatives where assessed.

Following preliminary investigations, by various specialists, the alternatives were narrowed down to the most feasible options. This report thus only assessed route Alternatives 1, 4 and 5 as depicted in the figure. These route Alternatives are approximately two kilometres (2km) wide, thus the final placement of the power line, within the best route alternative, will be determined at the Basic Assessment stage.

The three Route Alternatives assessed following preliminary investigations.

No-go Alternative

As per the requirements of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) the alternative of not proceeding with the proposed project; must be assessed as an alternative. The No-Go Alternative would mean not constructing the proposed power line. The impacts, both positive and negative, will not be realised for the construction, operational and decommissioning phases.

NEED FOR THE PROJECT

Electrical Grid Infrastructure (EGI) is required to provide grid access to electricity producers, in order to be able to distribute the electricity they generate to users. Independent Power Producers (IPPs) have rapidly become key electricity producers and this has increased the demand for grid access and hence the need to construct more EGI. The establishment of large-scale renewable energy (RE) generation is becoming a primary driver of network development, particularly in the Western, Eastern and Northern Cape Provinces. The Northern Cape Province (NCP) a is particularly suited to solar projects due to the high levels of solar radiation it receives (Northern Cape PSDF, 2018). Likewise, the Namakwa District, within the NCP, has a competitive advantage in the energy sector with the wind solar, wave, nuclear and natural gas projects being identified (Namakwa District Municipality IDP, 2017).

Developing the energy sector holds great huge potential benefits for the Northern Cape and would have significant knock-on effects for the local economy. In order to facilitate the development of this industry the necessary infrastructure and associated amenities need to be provided through innovative planning (Northern Cape PSDF, 2018).

Eskom's ability to continue to supply the national electricity requirements is significantly hampered by several factors including aging infrastructure and a failure of coal power stations due to, amongst others, poor maintenance (Nchabeleng, 2019). The proposed power line will provide much needed infrastructure and support the inclusion of more renewable energy sources, thus reducing the country's dependency on coal.

APPROACH TO THE STUDY

The approach to this SIA is based on the Western Cape Department of Environmental Affairs and Development Planning (DEA&DP) Guidelines for Social Impact Assessment (February 2007). These guidelines are based on international best practice. The key activities in the SIA process embodied in the guidelines were applied as follows:

- Describing and obtaining an understanding of the proposed intervention (type, scale, and location), the settlements and communities likely to be affected by the activities associated with the development of the proposed power line within the study area.
- Collecting baseline data on the current social and economic environment of the Northern Cape Province, Namakwa District Municipality, the Nama Khoi Local Municipality and the Khâi Ma Local Municipality.

- Identifying the key potential social issues associated with the proposed project. This included a site visit to the mine and consultation with affected individuals and communities (local community, organs of state and landowners).
- Assessing and documenting the significance of social impacts associated with the proposed power line and associated activities.
- Identifying enhancement and mitigation measures to enhance benefits and reduce the significance of negative impacts.

The identification of potential social issues associated with the proposed power line has been based on:

1. Observations during the project site visits;
2. Consultation with Interested and Affected Parties (I&APs);
3. Consultation with Organs of State, namely:
    - Department of Rural Development and Land Reform,
    - Department of Minerals Resources,
    - Nama Khoi Local Municipality,
    - Namakwa District Municipality,
    - Namakwa District Municipality Department of Transport, Safety and Liaison,
4. Review of relevant documentation; and,
5. Review of similar projects.

An SIA should enable the relevant interested and affected parties (authorities, project proponents, individuals, communities, and organisations) to understand and be able to identify and anticipate the potential social consequences of the implementation of a proposed policy, programme, plan, or project.

The outcome of this SIA process will therefore:

1. Inform communities and individuals within the area surrounding the site about the proposed project and potential social impacts.
2. Allow local communities to comment and raise concerns, should there be any. They will also be able to assess the implications and identify potential alternatives and mitigation measures.
3. Alert proponents and planners to the likelihood and nature of social impacts associated with the proposed power line.

4. Enable proponents to anticipate and predict social impacts in advance so that the findings and recommendations of the assessment are incorporated into and inform the planning and decision-making processes.

SUMMARY OF KEY FINDINGS

POLICY AND PLANNING FINDINGS

Within the NDP job creation is noted as an important factor for future development, this is key to eradicating poverty which is also one of the aims of the Northern Cape's PSDF. The proposed power line will create jobs during the construction phase. Once operational, the power line will aid job creation indirectly by providing the necessary infrastructure to support the development of further IPP projects. The power line will increase the electricity supply to the area, supporting the further industrial development.

Renewable energy developments play an important role in supporting the energy requirements of South Africa's fast-growing economy in a sustainable manner and are key for the DoE to achieve their goal of an energy mix with 30% clean energy sources by 2025. The proposed power line is situated in a Renewable Energy Development Zone, as per the Northern Cape PSDF, and will be situated in close proximity to solar and wind corridors as per the NKLM IDP.

With a decline in the mining industry and the looming threat of Climate Change, diversifying the economy and capitalising on the Northern Cape's comparative advantages needs to be considered in order to strengthen the economy and reduce poverty. Tourism is noted as an important economic contributor in the Nama Khoi IDP and the proposed power line needs to be located in such a way so as to avoid impacting the tourism industry. The NKLM IDP also identifies important ecological corridors which the proposed power line will traverse. Both the DoE's Strategic Plan and the PSDF speak to the protection and sustainable use of natural resources.

Overall the reviewed planning documentation supports the development of the proposed a power line as it will provide the necessary infrastructure to support future IPP developments and is situated within a Renewable Energy Development Zone. Future IPP developments will benefit the area's economy through job creation and the increased supply of electricity. The development will support the DoE's vision to improve the energy mix to 30% clean energy sources by 2025.

As an important economic contributor to the economy, the viability of tourism needs to be protected by buffering key tourist attractions/routes from developments that may detract from

their appeal. The power line needs to be located and constructed in such way so as not to compromise the ability to exploit existing and potential tourism opportunities.

Furthermore, natural resources and sensitive ecological areas need to be protected. While it will not be possible to completely avoid important ecological areas as depicted by the NKLM IDP, placement and construction of the power line needs to be done in such way that the integrity and functionality of these areas is not compromised.

KEY IMPACT FINDINGS AND RECOMMENDATIONS OF THE CONSTRUCTION, OPERATIONAL AND DECOMMISSIONING PHASES

CONSTRUCTION AND DECOMMISSIONING PHASE

Potential Negative Impacts

During construction and decommissioning most of the negative impacts will associated with disturbances created by construction activities. Such disturbances will affect the daily life of nearby residents and could particularly affect business for guesthouses and resorts. Impacts will be higher the closer the power line is placed to farmsteads, guesthouses and residential areas. By strategically placing the power line and implementing mitigation measures these impacts can be reduced to acceptable levels.

Local farmers and family and social structures are at risk of being negatively impacted by large construction crews due to the isolated and marginal nature of the project area. This is based upon the potential for misconduct or 'risky' behaviour by construction staff rather than the mere presence of construction workers. The magnitude of the impact will depend on the size of the workforce, the period they are on site and where they are housed during construction. As a linear development, construction will not be restricted to one area for extended periods and the workforce is likely to be relatively small. As such, these impacts are expected to be low with the application of mitigation measures (Barbour & van Zyl, 2016).

Construction or decommissioning activities may also result in an increase in crime. Farmsteads would be particularly at risk as these are often very remotely situated within the study area. Crime would likely be in the form of livestock and/or property theft. Housing of construction staff during must thus be carefully considered. The Proponent and contractor will need to include landowners in the planning of the construction phase and maintain communication with landowners throughout the process.

In general, negative impacts during the construction phase will be higher the closer the power line is placed to populated areas such as farmsteads and guesthouses/resorts. Implementing mitigation measures will be necessary to ensure that most of the impacts are reduced to a low significance.

Potential Positive Impacts

The construction and decommissioning phase will have positive economic effects through creating new, temporary job opportunities and through contractors making use of local businesses for accommodation, sustenance, equipment and construction materials. Likewise, construction staff will spend some of their income at local businesses and informal traders. The Proponent will also need to rent land from local landowners for setting up construction camps and/or laydown areas.

Potential positive impacts can be enhanced by the Proponent and contractor, who should, as far as possible, make use of local labour and businesses. Should there be a lack of skilled local labour, the Proponent could consider offering in-house training to fill semi-skilled positions.

OPERATIONAL PHASE

Potential Negative Impacts

Once operational the visual intrusion of the power line will pose the highest negative impact. Visual intrusion is expected to have a particularly high impact on businesses such as guesthouses/resorts and historic attractions. Power lines imparting an industrial feel which will detract from businesses relying on 'sense of place'. Such impacts can be largely avoided by placing the power line a suitable distance from tourism related businesses. Where feasible and necessary, the route should be altered to strategically place the power line behind topographical features like hills. Where 'hiding' the power line is not possible, it will have to be routed to allow sufficient distance between it and tourist attractions.

Potential sterilisation of minerals needs to be considered. This can largely be avoided by ensuring the line is not placed over known mineral deposits and/or on land with existing mineral claims. Where this is unavoidable, the Proponent will need to liase with mineral right holders in establishing a route. This has been discussed in greater detail in the Economic Impact Assessment report.

While taking the abovementioned into account, the route will need to consider access for conducting maintenance. The selected route of the power line should ensure that the line can be accessed with relative ease by maintenance personnel. This will reduce interruptions in service delivery.

Potential Positive Impacts

Once constructed the new power line will have several positive impacts at a local, provincial and national scale. The extra transmission capacity will facilitate future IPP projects and support the Namakwaland and National electricity networks.

Economic development and climate change: Besides income generated from electricity sales, IPP developments will have positive economic knock-on effects as well, such as facilitating job creation and economic development at a local scale.

With climate change threatening the viability of the NCP's agricultural industry and a gradual decline in the mining industry, diversifying the local economy will be a key approach to mitigating economic decline. Future IPP developments will enable local municipalities to further capitalise on the province's comparative advantages for wind and solar projects. This would support the shift from non-renewable resources and help meet national targets for clean energy sources

Monetary impact: Where the power line traverses private land, the landowners will benefit directly from the monetary compensation. The Proponent could consider others forms of compensation in order to compensate communities residing on communal land.

Important note: Proper placement of the power line is key to minimising potential negative impacts to local communities and ensuring that positive impacts out-weigh the negative in the long term.

CUMULATIVE IMPACTS

The construction of an additional power line near the existing line would likely cumulate existing visual impacts. It is typically desirable to cluster industrial infrastructure, keeping other areas free from industrial clutter. Given the area's current 'sense of place', following the route of the existing power line could significantly cumulate visual impacts. Cumulative impacts would be particularly high were the power line to pass through the Goegap Nature Reserve and other protected areas. Should the new power line follow sections of the existing line, it should be plotted in a way that avoids cumulating visual impacts.

ASSESSMENT OF NO-GO OPTION

Should the option of not constructing the proposed power line be opted for, the negative impacts associated with the construction phase, such as a disturbance to daily life and a potential increase in crime will not be realised. The area's sense of place would not be affected by construction activities and the long-term visual intrusion of the power line. The tourism industry will neither be

negatively or positively affected. Positive impacts such as job creation, economic development and a more stable electricity supply will not be realised.

While the option of not constructing the power line will avoid several negative impacts it will result in a high opportunity cost. Without the necessary grid infrastructure to distribute electricity, the development of future IPP projects will be greatly restricted. Economic benefits associated with the development of IPP projects would be forfeited. Landowners would not receive the extra income in the form of compensation, an income source which would particularly benefit farmers struggling due to the drought.

With a gradually declining mining industry and climate change threatening the viability of agriculture in the Northern Cape, alternative economic contributors will become increasingly important. Not exploiting the comparative advantages held by the Northern Cape, in terms of wind and solar, will result in high opportunity costs at both a local and national scale. Furthermore, the opportunity for combating climate change by capitalising on renewable energy sources would not be realised.

CONCLUSIONS AND RECOMMENDATIONS OF THE FINDINGS

Alternative 1

From a practical perspective Alternative 1 is the more feasible option, providing the shortest distance between substations and roughly follow the existing power line with its existing access roads. However, the western section of Alternative 1 passes by numerous sensitive receptors, including several guest resorts and farmhouses. Construction and decommissioning phase impacts are expected to be higher along this stretch. Following the existing power line also creates the risk of cumulating visual impacts. Due to the number of sensitive receptors along the section, the western section of Alternative 1 is not recommend.

The eastern section of Alternative 1, spanning Nama and Aggeneis substations, passes through the Goegap Nature Reserve and other conservation areas. As a provincial nature reserve, Goegap is valuable for conservation and tourism. This section of Alternative 1 is not recommend as negative visual impacts, affecting 'sense of place' would be significantly high. The section of Alternative 1, further east of the protected areas, is feasible. This section passes through sparsely populated areas of low importance for tourism. If the other specialist studies propose the eastern section of Alternative 1 as a feasible option the power line would need to follow the N14 highway closely, remaining on the extreme edges of Goegap Nature Reserve.

Alternative 4

Due to the remoteness of route Alternative 4, the potential for negative social impacts during construction will be significantly lower than the western section of Alternative 1. Alternative 4 avoids Spektakel Pass and the numerous guesthouses and farmsteads along it.

Alternative 4 does presents significant practical challenges, as the mountainous topography would complicate the construction process and make the power line difficult to access once operational. The NKLM noted that the existing power line is already challenging to access, affecting the turnaround time of repairs. Cost is another factor, as Alternative 4 spans a longer distance, approximately fifteen kilometres (15km) more than Alternative 1. This carries significant financial implications as each kilometre of power line costs the Proponent several million, money which could be better spent on social upliftment projects.

Alternative 5

The section between Nama substation and Aggeneis substation that Alternative 5 traverses, consists predominantly of farmland and is generally of low tourism importance. Alternative 5 presents a feasible option as it avoids the Goegap Nature Reserve. A section of Alternative 5 passes within five hundred metres (500m) of the Appolis Guest House and several farmsteads. This section should be routed further south-east to avoid these areas. As Alternative 5 moves east it runs parallel with the existing line through an area of low sensitivity.

Conclusions

Developing a 400 kV power line from the Gromis via the Nama to Aggeneis substations and expanding the Nama substation will result in several positive spin-offs through facilitating the development of IPP projects in the area and supporting the national electricity grid and energy development goals. Furthermore, national and municipal planning documents are in support of the proposed development so long as the power line does not adversely impact the local tourism industry.

While the power line will facilitate several positive economic impacts, it would pass through a scenic landscape with a rich cultural heritage, an important tourism industry and a large marginal population. These factors make the area particularly susceptibility to potential negative impacts, especially any impacts that will affect the ‘sense of place’.

Assessing these potential impacts found that negative impacts were typically expected to be higher near farmsteads/residential areas and important tourism or historic attractions (see Table 3). Positive impacts are expected to be less dependent on distance from social features.

Visual intrusion will be one of the main negative impacts as it will impact the 'sense of place' throughout the operational life of the power line. This is expected to increase the closer the power line is situated to residential areas, farmsteads and tourism related facilities. Poor location of the power line would threaten the viability of existing tourism related features such as guest resorts and nature reserves. Such impacts can be mitigated by avoiding 'No-Go' areas to ensure the power line is not placed near sensitive receptors.

Given that construction related impacts will be temporary and can be mitigated or avoided, selecting the route with the lowest operational phase impacts is preferable.

Although declining, mining activities remain a key economic contributor to Namakwaland and the possible sterilisation of minerals needs to be prevented. While the public participation process of the Screening assessment endeavoured to consult all relevant mining companies, the consultation was limited relative to the number of mining rights held within the area. A more in-depth consultation process should be pursued upon assessing the finalised route, during the Basic Assessment phase. As mentioned, the sterilisation of minerals has been addressed in more detail in the Economic Impact Assessment.

Recommendations

Construction and Decommissioning

- Notify residents prior to conducting activities that may cause excessive noise.
- Use attenuation for machinery where possible.
- Contractors to strictly monitor for any non-employees on site and to report any immediately.
- All employees are required to have a form of identification.
- No farm gates to be left open.
- Farmers to report cases of livestock theft to the Contractor to investigate internally.
- Contractors to work closely with farm watch groups.
- Monitor dust levels and ensure dust mitigation measures are in place.
- All employees to be supplied with appropriate PPE.
- HIV/AIDS Awareness talks to be incorporated into induction talks.
- No non-employees to be allowed on the construction site/construction camp.
- Minimise disturbance to landowners/inhabitants through proper planning and notify them in good time of when access will be needed.
- Ensure noise is kept to a minimum.

- Do not block access roads.
- Do not remove fences prior to consent of landowner.
- Keep noise and dust generating activities to a minimum and time such activities between 08:00 – 17:00 during weekdays.
- Keep construction sites/camps neat and tidy, screen with inconspicuous netting, paint reflective materials a matt colour and minimise lighting at night.
- Employees to conduct themselves in an appropriate manner.
- Screen construction site/camp and keep neat.
- Clear as little vegetation as possible.
- Strictly adhere to working hours 08:00-17:00.
- Avoid construction over weekends, holidays and the flower season (September / October).
- As far as possible, hire staff from the surrounding areas, make use of local service providers and make use of local service providers for accommodation, sustenance, equipment hire, construction materials etc.
- Avoid construction over weekends,
- Maintain contact with farmers in the surrounding area and keep them updated regarding planned construction activities.

Operational

- Avoid placing the power line within or near No-Go areas.
- Route of power line should place the line in such as position that potential for visual intrusion is minimised.
- Shiny sections on structures should be painted a mat non-reflective colour.
- Where the power line passes through communal ground make meaningful compensation that will aid in the long-term upliftment of communities, e.g. through the provision of infrastructure or facilities.
- Route of power line should place the line in such as position that potential for visual intrusion is minimised.
- Consult with the relevant authorities with regards to mineral deposits and mining rights and ensure the line does not cross areas of known mineral deposits and/or where existing mining rights exist.

IMPACT STATEMENT

The findings of this SIA indicate that if mitigation measures are implemented, negative impacts can be lowered to acceptable levels. Thus, implementation of mitigation measures will ensure that the proposed development of a 400 kV power line from Gromis substation via Nama substation to Aggeneis substation will have social benefits that outweigh the negative impacts. It is recommended that between Gromis substation and Nama substation the power line should be constructed along Alternative 4. From Nama to Aggeneis substation the power line should follow Alternative 5.

Please take note that if mitigation measures are not adhered to then the proposed power line could have high negative impacts on the area's tourism industry, farmers and local communities.

Table of Contents

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EGI	Electrical Grid Infrastructure
EMP	Environmental Management Plan
GDP	Gross Domestic Profit
NCP	Northern Cape Province
I&AP's	Interested and Affected Parties
NDM	Namakwa District Municipality
KMLM	Khâi Ma Local Municipality
NEMA	National Environmental Management Act, (No. 107 of 1998)
NKLM	Nama Khoi Local Municipality
PPP	Public Participation Process
RE	Renewable Energy
The Proponent	Eskom Holdings SOC Ltd
SIA	Social Impact Assessment
SEA	Strategic Environmental Assessment

SECTION 1: INTRODUCTION

1.1 INTRODUCTION

Enviroworks was appointed by Eskom Holdings SOC Ltd (The Proponent), to undertake a Socio-Economic Impact Assessment for a proposed new power line from Gromis substation via Nama substation towards Aggeneis[2] substation in the Northern Cape Province.

The Socio-Economic Impact Assessment has been split into two separate reports namely a Social Impact Assessment (SIA) and an Economic Impact Assessment. The findings of these two reports will be combined into a summarised Socio-Economic Report.

This SIA report will assess social issues.

Enviroworks (Pty) Ltd, part of the SHE Group, is a professional Environmental Specialist, Compliance, Training and Advisory Consultancy. Enviroworks was established in 2002 and is backed by a collective 75 years of professional service and experience in the environmental field. The qualifications and expertise of the professional team form the backbone of the company's continued success. Enviroworks has grown continuously in their offering of high-quality Environmental Specialist Services. Enviroworks received various awards for their services and works both nationally and internationally. Enviroworks' consultants are members of the International Association of Impact Assessment, South Africa (IAIAsa) (http://www.iaiasa.co.za/). As members of IAIAsa, Enviroworks works according to their code of ethics. Enviroworks' consultants belong to the International Association for Public Participation (IAP2) and adhere to the purpose and code of ethics. Furthermore Enviroworks' consultants are undergoing the process of registering with the Environmental Assessment Practitioners Association of South Africa (EAPASA).

The development of the power line has been proposed in order to provide the necessary grid capacity to facilitate the integration of Independent Power Producers (IPPs) and increase stability of the Electrical Grid Infrastructure (EGI), ensuring that the Namaqualand network can distribute electricity to present and future users. The proposed power line will thus facilitate the establishment of further IPP developments in the Namaqualand area.

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This SIA aims to determine and assess the social impacts that may be incurred as a result of constructing the proposed power line. The report will also provide mitigation measures to improve positive impacts and reduce mitigate negative impacts.

The information contained within this report was sourced from:

- The Background Information as presented at the Compulsory Meeting during the tender phase and at the Initiation Meeting held at Megawatt Park on 04/09/2019;
- Consultation with various stakeholders and comments received from the public during the Public Participation Process; and
- A review of relevant policy and planning documents
    - The National Development Plan (2030)
    - Department of Environmental Affairs & Development Planning: Guideline for Involving Social Assessment Specialists in EIA Processes (2007);
    - Department of Energy: Strategic Plan, 2015-2020;
    - Northern Cape Provincial Spatial Development Framework Executive Summary, 2018;
    - Northern Cape Provincial Government – Socio-Economic Review and Outlook; 2018;
    - Namakwa District Municipality: Integrated Development Plan 2017-2022;
    - Nama Khoi Municipality Draft Integrated Development Plan 2018/2019;
    - Nama Khoi Local Municipality Spatial Development Framework, 2014;
    - Khâi- Ma Local Municipality (Revised (2019/20) Integrated Development Plan (2017/18- 2021/22);
    - Strategic Environmental Assessment for Wind and Solar Photovoltaic Energy in South Africa, CSIR, 2015 – Appendix A7, Socio-Economic Scoping Assessment Report; and,
    - Frank Vanclay: International Principles for Social Impact Assessment (2003).
- Potential Interested and Affected Parties (I&APs) were identified via:
    - Eskom database of landowners for land the existing line traverses;
    - Windeed searches of the properties traversed by the alternative routes;

- A request for information lodged with the Department of Minerals in regard to mining right holders;
- Registered Land Claims requested from the Department of Rural Development and Land Reform;
- Consultation with key Organs of State;
- Consultation with I&APs;
- Review of the public participation process for previous studies;
- Database of applications for renewable energy projects across South Africa; and,
- A physical drive along the proposed route alternatives.

1.2 TERMS OF REFERENCE

The key aim of this SIA is to identify, describe and assess impacts of a social nature that may arise as a result of the development of the proposed Gromis-Nama-Aggeneis power line. The Terms of Reference for this SIA require the following:

- A description of the environment surrounding the proposed power line that may be affected by the development as well as the manner in which the surrounding environment may be affected.
- A description and assessment of the potential social issues associated with the proposed power line and associated activities.
- Identification of enhancement and mitigation measures aimed at maximising opportunities and avoiding and or reducing negative impacts associated with the proposed power line and associated activities.

1.3 APPROACH TO STUDY

The approach to this SIA is based on the Western Cape Department of Environmental Affairs and Development Planning (DEA&DP) Guidelines for Social Impact Assessment (February 2007). These guidelines are based on international best practice. The key activities in the SIA process embodied in the guidelines were applied as follows:

- Describing and obtaining an understanding of the proposed intervention (type, scale, and location), the settlements and communities likely to be affected by the activities associated with the development of the proposed power line within the study area.
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6. Observations during the project site visits;
7. Consultation with Interested and Affected Parties (I&APs);
8. Consultation with Organs of State, namely:
    - Department of Rural Development and Land Reform,
    - Department of Minerals Resources,
    - Nama Khoi Local Municipality,
    - Namakwa District Municipality,
    - Namakwa District Municipality Department of Transport, Safety and Liaison,
9. Review of relevant documentation; and,
10. Review of similar projects.

Definitions of Social Impacts

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

1) Individual level;
2) Family or household level;
3) Community level;
4) Organisational level; and,
5) Society level.

An SIA should therefore enable the relevant interested and affected parties (authorities, project proponents, individuals, communities, and organisations) to understand and be able to identify and anticipate the potential social consequences of the implementation of a proposed policy, programme, plan, or project.

The outcome of this SIA process will therefore:

5. Inform communities and individuals within the area surrounding the site about the proposed project and potential social impacts.
6. Allow local communities to comment and raise concerns, should there be any. They will also be able to assess the implications and identify potential alternatives and mitigation measures.

7. Alert proponents and planners to the likelihood and nature of social impacts associated with the proposed power line.
8. Enable proponents to anticipate and predict social impacts in advance so that the findings and recommendations of the assessment are incorporated into and inform the planning and decision-making processes.

Social impacts are complicated by the way in which different people from different cultural, ethnic, religious, gender, and educational backgrounds etc. view the world. This is referred to as the "social construct of reality." The social construct of reality informs people's worldview and influences the way in which they react to changes.

1.3.1 Timing of Social Impacts

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

1.4 ASSUMPTIONS AND LIMITATIONS

1.4.1 Assumptions

- It is assumed that the development area represents a technically suitable site for establishment of a 400 kilovolt (kV) power line and that feasibility studies undertaken by the Proponent were undertaken with integrity and accurately reflect the current situation on the ground. The proposed development site is situated within a corridor determined by the Strategic Environmental Assessment for Electricity Grid Infrastructure in South Africa, conducted by the Council for Scientific and Industrial Research in 2016.
- It is assumed that all information provided by the Proponent was accurate and true.
- It was assumed that the information gathered during the public participation process accurately reflects the attitude of the public towards the proposed power line.

1.4.2 Limitations

- The baseline study was conducted primarily using data from the Statistics South Africa 2011 Census and 2016 Community Survey. These are the most recent source of official statistics. While the data does provide useful information regarding the social situation of the area concerned, it needs to be noted that the data is now somewhat outdated and actual population demographics may differ. Where possible demographic information was supplemented by the Statistics South Africa 2019 Mid-year population estimates.

- While this study did attempt to make use of as wide a range of data sources as possible, there was a limitation due to time and budgetary constraints.

1.5 SPECIALIST DETAILS

This report, and appendixes, was compiled by Michael Leach of Enviroworks. The report was then reviewed by Elbi Bredenkamp of Enviroworks.

A detailed Curriculum Vitae for each specialist is provided as **Appendix C.**

DECLARATION OF INDEPENDENCE

This confirms that Michael Leach and Elbi Bredenkamp, the specialist consultants responsible for undertaking the study, preparing and reviewing the report, are independent and do not have vested or financial interests in the proposed project being either approved or rejected.

1.6 REPORT STUCTURE

The report is divided into five sections, namely:

- Section 1: Introduction
- Section 2: Policy and Planning Environment
- Section 3: Overview of the Study area
- Section 4: Consultation Process
- Section 5: Key Social Issues
- Section 6: Assessment of Impacts
- Section 7: Key Findings and Recommendations.

1.7 PROJECT LOCATION AND DESCRIPTION

1.7.1 Project Background Summary

The Proponent proposes to develop a new power line from Gromis substation via Nama substation towards Aggeneis substation in the Northern Cape Province.

In order to ensure that the Namaqualand network is compliant and that there is sufficient line capacity to accommodate potential Independent Power Producers (IPPs) within the Namaqualand area, the construction of the new Gromis-Nama-Aggeneis 400 kV line and establishment of a 400/132 kV yard at Nama substation is proposed. The Screening Assessment aims to determine possible route alternatives for the proposed new power line and then to assess these alternatives. Based on the findings, the assessment will propose the best route alternative. Eskom will then use the best route and begin negotiations with landowners. Following this the pre-negotiated route will be assessed in detail during a Basic Assessment Process. During the Basic Assessment process a formal application will be lodged for the necessary Environmental Authorisation to construct the powerline.

Strategic Environmental Assessment for Strategic Electrical Grid Infrastructure Corridors

In 2016 a Strategic Environmental Assessment (SEA) was undertaken by CSIR. The purpose of the SEA was to identify strategic Electricity Grid Infrastructure (EGI) Corridors to support electricity transmission up to 2040. The vision for the Strategic EGI was to expand in an environmentally responsible and efficient manner that effectively meets the country's economic and social development needs.

The final EGI Power Corridors assessed as part of the 2016 EGI Strategic SEA were gazetted for implementation on 16 February 2018 in Government Gazette 41445, Government Notice R.113. One of these corridors, was the Northern Corridor – Please see Figure 1 for the Gazzetted Corridors. The proposed new power line will be constructed within the Northern Corridor.

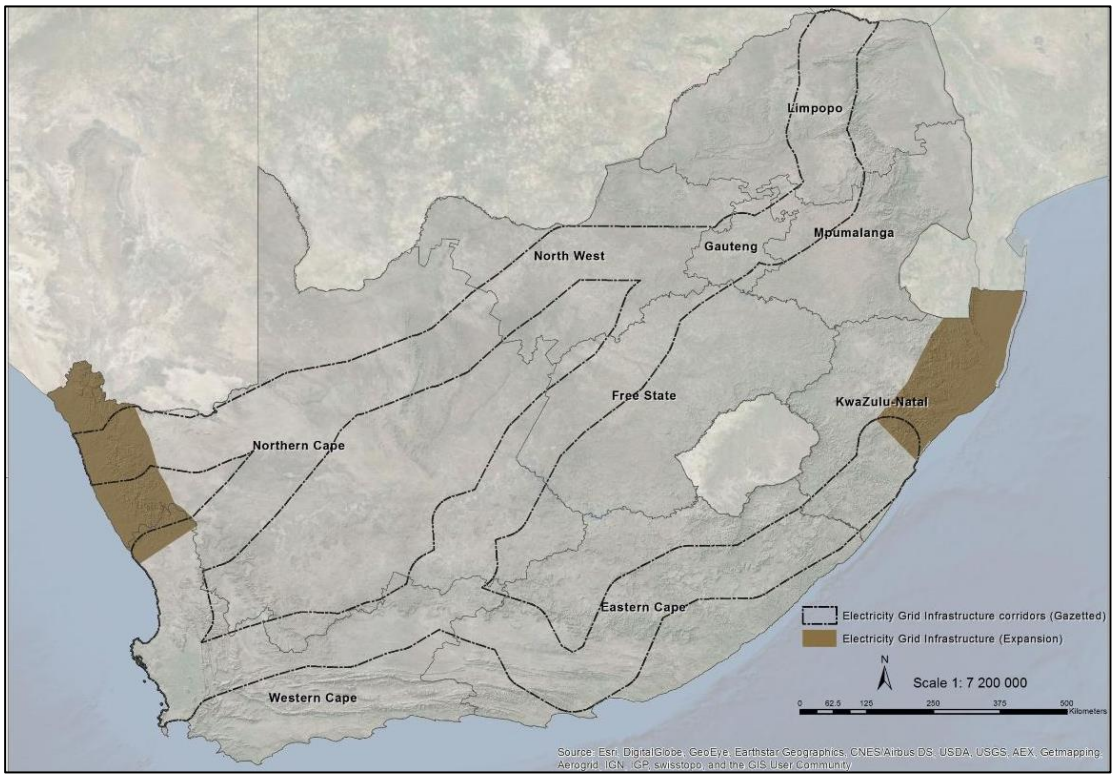


Figure 1: The final Electricity Grid Infrastructure (EGI) Power Corridors assessed as part of the 2016 EGI Strategic Environmental Assessment.

The purpose of the current Screening Assessment is to evaluate alternative routes within the Northern Corridor. An SIA has been conducted as part of the Screening Assessment, in order to determine the best route alternative for the proposed development in terms of the potential social impacts posed by the development.

The outcomes of this SIA will be incorporated into the Screening Report, which in turn will then be used by Eskom to negotiate a servitude with landowners. These negotiations will take place after the Screening Assessment and will not form part of the current study. After negotiations with landowners Eskom will proceed with the next stage which is to conduct a Basic Assessment (BA) in order to obtain

an Environmental Authorisation from the competent authority for the pre-negotiated route. Stakeholder consultation will be done again during this phase. Two (2) thirty-day periods will be allowed for the public to comment, as per the Environmental Impact Assessment Regulations, 2014. All information gathered during the screening process will be used in the BA process and application for authorisation.

1.7.2 Locality

The proposed route alternatives currently being assessed are situated within the Northern Corridor, as identified in the SEA conducted by CSIR in 2016. The route alternative routes can be seen in **Figure 2**. The identification of these routes was preceded by a rigorous process of investigation, consultation and specialist input. Detailed Route Alternatives are described in the sections below, with associated maps.

Coordinates of the starting point	**Coordinates of the end point**
Longitude: -29° 35’ 58.50’’ S	Longitude: -29° 17’ 48.28’’ S
Latitude: 17° 10’ 45.85’’ E	Latitude: 18° 48’ 11.06’’ E

The proposed power line would start at the Gromis substation, approximately 14km east of the town of Klienzee. The power line will then proceed eastwards to the Nama substation, approximately 4km north of Springbok, and will end at the Aggeneis substation, approximately 9km west of the town of Aggeneys. Several towns are situated between the start and end points, including Buffelsrivier, Nababeep, OKiep, Springbok, Carolusburg and Concordia. The land situated in between the substations is predominantly used for farming. Other land uses include renewable energy farms, guest houses, nature reserves and urban development.

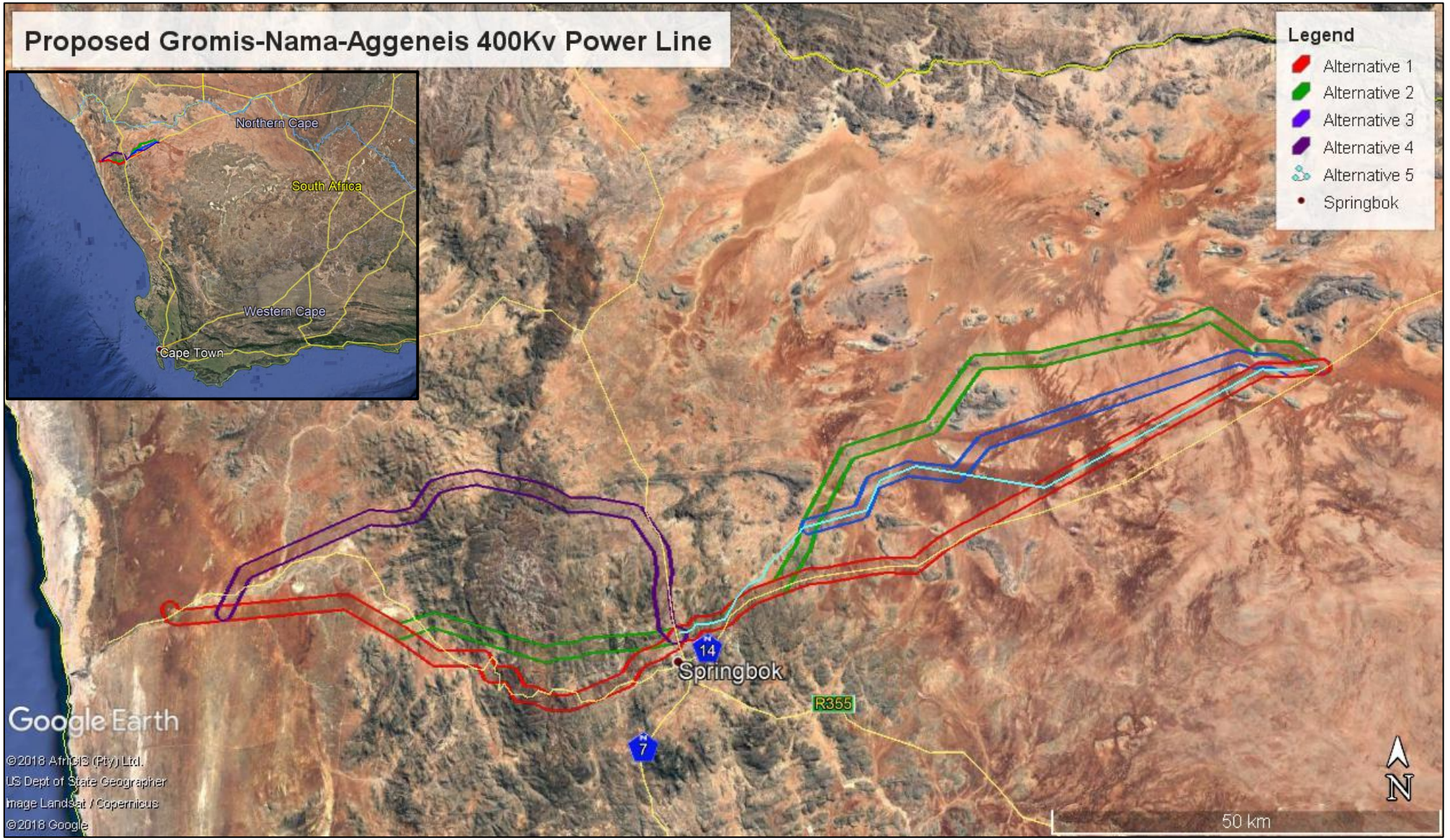


Figure 2: Locality Map which depicts the three (3) substations which the proposed power line will connect.

1.7.3 Main Project Components

The proposed development would consist of the following:

- Development of a 400 Kilovolt (kV) power line;
- Development of pylon structures to support the power lines. Pylons will be spaced approximately four hundred and sixty metres (460m) apart on average.
- The Nama substation will be expanded to a 400/132 kV yard.

1.8 ALTERNATIVES

During the initial site visit, four (4) different route Alternatives where assessed. The Alternatives are illustrated below.

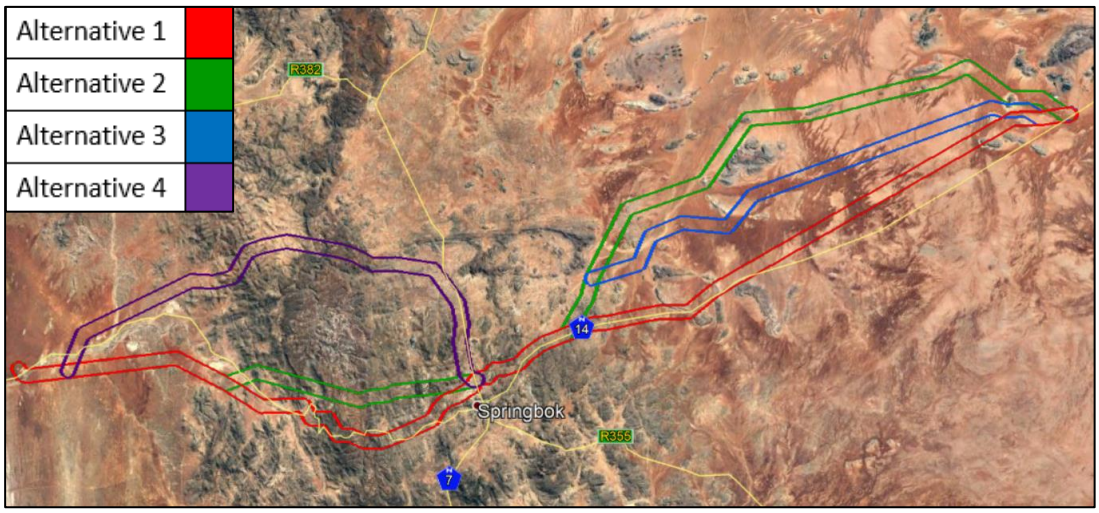


Figure 3: The four Route Alternatives assessed during preliminary investigations.

Following preliminary investigations, by various specialists, during the site visit the alternatives were narrowed down to the most feasible options. Alternatives 2 and 3 were excluded from further investigations. Alternative 5 was added as additional alternative which would follow the existing line as far as possible while avoiding conservation areas, such as Goegap Nature Reserve.

As the area east of Nama substation had fewer sensitive areas than the western section, the longer distance of Alternative 2 would result in unnecessary costs. Likewise, Alternative 3 was also excluded and Alternative 5 proposed, as it avoided sensitive areas and traversed the shortest distance. This report thus only assessed route Alternatives 1, 4 and 5 as depicted below in **Figure 4**. These route Alternatives are approximately two kilometres (2km) wide, thus the final placement of the power line, within the best route alternative, will be determined at the Basic Assessment stage.

Figure 4: The three Route Alternatives assessed following preliminary investigations.

No-go Alternative

As per the requirements of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) the alternative of not proceeding with the proposed project; must be assessed as an alternative. The No-Go Alternative would mean not constructing the proposed power line. The impacts, both positive and negative, will not be realised for the construction, operational and decommissioning phases.

1.9 NEED FOR PROJECT

Electrical Grid Infrastructure (EGI) is required to provide grid access to electricity producers, in order to be able to distribute the electricity they generate to users. Independent Power Producers (IPPs) have rapidly become key electricity producers and this has increased the demand for grid access and hence the need to construct more EGI. The establishment of large-scale renewable energy (RE) generation is becoming a primary driver of network development, particularly in the Western, Eastern and Northern Cape Provinces. The Northern Cape Province (NCP) a is particularly suited to solar projects due to the high levels of solar radiation it receives (Northern Cape PSDF, 2018). Likewise, the Namakwa District, within the NCP, has a competitive advantage in the energy sector with the wind solar, wave, nuclear and natural gas projects being identified (Namakwa District Municipality IDP, 2017).

Developing the energy sector holds great huge potential benefits for the Northern Cape and would have significant knock-on effects for the local economy. In order to facilitate the development of this industry the necessary infrastructure and associated amenities need to be provided through innovative planning (Northern Cape PSDF, 2018).

Eskom's ability to continue to supply the national electricity requirements is significantly hampered by several factors including aging infrastructure and a failure of coal power stations due to, amongst

others, poor maintenance (Nchabeleng, 2019). The proposed power line will provide much needed infrastructure and support the inclusion of more renewable energy sources, thus reducing the country's dependency on coal.

Furthermore, based on the findings of the Strategic Environmental Assessment for Wind and Solar Photovoltaic Energy in South Africa, conducted by CSIR in 2015, the development of RE projects will have direct and indirect benefits and will aid in diversify the economies of local municipalities. This will be particularly important for the study area which relies heavily on mining and agricultural industries, both of which have seen a decline over the years.

SECTION 2: POLICY AND PLANNING ENVIRONMENT

2.1 INTRODUCTION

Section 2 of this SIA provides an overview of the most significant policy documents of relevance to the proposed power line. The key documents reviewed included the following:

- The National Development Plan (2030)
- Department of Environmental Affairs & Development Planning: Guideline for Involving Social Assessment Specialists in EIA Processes (2007)
- Department of Energy: Strategic Plan, 2015-2020
- Northern Cape Provincial Spatial Development Framework Executive Summary, 2018
- Northern Cape Provincial Government – Socio-Economic Review and Outlook; 2018
- Namakwa District Municipality: Integrated Development Plan 2017-2022
- Nama Khoi Municipality Draft Integrated Development Plan 2018/2019
- Nama Khoi Local Municipality Spatial Development Framework, 2014
- Khâi- Ma Local Municipality (Revised (2019/20) Integrated Development Plan (2017/18-2021/22)
- Strategic Environmental Assessment for Wind and Solar Photovoltaic Energy in South Africa, CSIR, 2015 – Appendix A7, Socio-Economic Scoping Assessment Report
- Frank Vanclay: International Principles for Social Impact Assessment (2003)

2.2 SUMMARY OF REVIEWED DOCUMENTS

2.2.1 The National Development Plan (2030)

The National Development Plan (NDP) 2030 contains a plan aimed at eliminating poverty and reducing inequality by 2030 making this one of the guiding objectives of the NDP over the next 20 years. The NDP aims to address poverty and exclusion on the while simultaneously attempting to nurture economic growth by creating a virtuous cycle of expanding opportunities, building capabilities,

poverty reduction, involving communities in their own development, all leading to rising living standards. The NDP identifies 9 key challenges and associated remedial plans. While all nine challenges/ plans are envisaged as part of an integrated whole, the highest priorities are regarded employment creation and improving the quality of national education. Expansion and acceleration of development which would result in increased employment opportunity is identified as a key intervention strategy. Noted in the NDP is that procuring 20 000 MW of renewable electricity is one of the infrastructure investments that should be prioritised.

The NDP supports the proposed power line as it will create jobs, both directly and indirectly, and will provide the necessary infrastructure for achieving the goal of 20 000 MW of renewable electricity. Development of the power line will need to be done in such a way that it does not compromise other industries and so indirectly cause job losses.

2.2.2 Department of Energy: Strategic Plan, 2015-2020

The Department of Energy (DoE) has been tasked with securing the supply of energy resources and pursuing a combination of energy sources that include both clean and renewable resources in order to meet the needs of the country's fast-growing economy while ensuring sustainable development is achieved. The DOE envisions to improve their energy mix, by 2025, to having 30% clean energy.

The DOE aims to "*Formulate energy policies, regulatory frameworks and legislation, and oversee their implementation to ensure energy security, promotion of environmentally-friendly energy carriers and access to affordable and reliable energy for all South Africans*."

Work on the Small Projects Renewable Energy Independent Power Producer Programme (REIPPP) will be increased. This aims to procure energy from small-scale Independent Power Producers (IPPs), producing between 1 – 5 MW. The DoE is looking to buy a total of 200 MW from small, medium and micro enterprises (SMMEs) that are producing energy from wind, solar, biomass and landfill gas projects.

The DOE has seven "Strategic Outcomes-Orientated Goals." Goals 2 (Infrastructure) and 4 (Universal Access & Transformation) in particular, are of relevance the proposed development at hand.

Strategic Outcomes-Orientated Goals	Goal Statement
1. Security of Supply	To ensure that energy supply is secure & demand is well managed.
2. Infrastructure	To facilitate an efficient, competitive & responsive energy infrastructure network.
3. Regulation & Competition	To ensure that there is improved energy regulation & competition.
4. Universal Access & Transformation	To ensure that there is an efficient & diverse energy mix for universal access within a transformed energy sector.
5. Environmental Assets	To ensure that environmental assets & natural resources are protected & continually enhanced by cleaner energy technologies.
6. Climate Change	To implement policies that adapt to & mitigate the effects of climate change.
7. Corporate Governance	To implement good corporate governance for effective & efficient service delivery.

Furthermore, the Strategic Plan identifies six departmental programmes. The purpose of 'Programme 6: Clean Energy' is to "*manage and facilitate the development and implementation of clean and renewable energy initiatives as well as Energy Efficiency and Demand-Side Management."* Part of this programme aims to integrate renewable energy into the mainstream energy supply.

The proposed development of the Gromis-Nama-Aggeneis power line will support the establishment of IPPs in the Northern Cape, thus supporting the integration of RE into the mainstream supply and increasing the availability of clean energy. The proposed development must ensure that it does not compromise goal five of the strategic plan, which aims to ensure the protection of environmental assets and natural resources.

2.2.3 Northern Cape Provincial Spatial Development Framework Executive Summary, 2018

The Northern Cape Provincial Spatial Development Framework (PSDF) aims to "*function as an innovate strategy that will apply sustainability principles to all spheres of land use management throughout the Northern Cape and which is to facilitate practical results, as it relates to the eradication of poverty and inequality and the protection of the integrity of the environment."*

The PSDF is purposed as a mechanism that will; effectively manage resources to ensure that all land-uses enable people to make a sustainable living while enhancing environmental integrity, bring the demand for resources into balance with the environmental carrying capacity and capitalise on the comparative advantages held by the Northern Cape.

The PSDF provides a:

- "*Spatial land-use directive which aims to promote environmental, economic, and social sustainability through sustainable development.*
- *A guide towards reducing business risk (by providing clarity and certainty on where public infrastructure investment will be targeted) thereby opening-up new economic opportunities in these areas.*
- *Guide towards the location and form of public investment in the Northern Cape's urban and rural areas.*
- *Basis for prioritising, aligning and integrating governmental programmes and projects*."

The Northern Cape has several challenges facing the municipality, including:

- Limited access and mobility within the Province,
- A lack of reverse of the apartheid planning systems, restricting the marginalised from accessing economic assets,
- The Province is mostly driven by the primary sector,
- A high dependency on the mining sector, providing temporary investment potential,

- A lack of management and protection of natural resources,
- Uncoordinated infrastructure development,
- Environmental challenges such as climate change and depletion of natural resources,
- Inadequate rural – urban linkages, and
- Uncoordinated spatial panning.

Key opportunities for the Province include:

- Strengthening the core development focus area/development triangle, formed by linking Kimberley, Vryburg, Upington and De Aar. The region has good accessibility with major transport linkages and supports a diverse economy with strong mining, agricultural and renewable energy sectors. A sustainable and viable economic network must be sought within the development triangle to improve the return of public investment in the Province.
- Improved public transportation modes are required within the development triangle in order to make economic development opportunities more accessible.

The PSDF identifies four Spatial Development Strategies which provide Strategic Focus Areas. The strategies and sub-points relevant to the proposed development are listed:

- Enhance Regional Connectivity
    - Support diversification of economies, tourism, the knowledge economy, the entertainment industry, the green economy and alternative energy-related enterprise development.
- Protect and Manage Biodiversity, Water and Agricultural Resources
    - Protecting and managing the protected national and provincial parks, as well as protected ocean areas.
    - Expand and further the establishment of the Protected Areas Network
    - Protecting high potential and unique agricultural resources.
- Infrastructure Investment
    - Ensure efficient supply of water, electricity and waste management services to sustain additional industry growth.
    - Provide green infrastructure e.g. water tanks, renewable energy (e.g. solar).
- Urban and Rural Development
    - Reviving rural areas into vibrant, equitable and sustainable rural communities.

The PSDF provides six Spatial Planning Categories (SPCs) which provide a framework with which to guide decision-making in terms of land-use planning. These categories support sustainable development through a more organised approach.

The proposed development falls within SPC F: Surface Infrastructure and Buildings. One of the issues this SPC aims to address is the limited capacity of electrical infrastructure, which is hindering development and manufacturing opportunities. One of the key strategies to address this challenge is to undertake Strategic Environmental Assessments (SEA) in areas suited for RE generation in order to incentivise and streamline the administrative and development processes. The SEA for Electricity Grid Infrastructure, undertaken by CSIR in 2016, was one such SEA (Department of Environmental Affairs, 2016).

In order to ensure the sustainability and economic viability of developments within the province, capital investment should be aligned towards spatially led development. Investment should align towards Growth Centres. Springbok was identified as a growth centre for tourism.

The proposed development of the new power line will support the establishment of further IPPs in the Springbok area. Supporting the expansion of IPPs will aid in providing sufficient electricity supply, sustain additional industry growth and will further diversify the economy. The proposed development can be considered to align with the Northern Cape PSDF so long as it does not compromise the tourism industry in the Springbok area or environmental resources.

2.2.4 Northern Cape Provincial Government – Socio-Economic Review and Outlook; 2018

The Northern Cape Provincial Government – Socio-Economic Review and Outlook, 2018, provides a provincial socio-economic profile which can be used to inform decision makers of where gaps occur and where resources can be focused. The report looks at demography, the economy, labour and human development.

Children aged 0-4 made up the largest portion of the province's population, with those aged 70-74 making up the smallest share of the population. The province has experienced high urbanisation rates and this is expected to continue to rise between 2016 and 2021. The Northern Cape made the smallest contribution to the national Gross Domestic Profit (GDP) in 2016. The largest industries in the province where mining and community services. The community and services industry were the largest industry in terms of the number of people employed, employing nearly a third of the provinces population towards the end of 2017. The biggest informal employer in 2016 was the trade industry. In terms of human development, both the poverty rate and poverty gap decreased between 2006 and 2016 for the Northern Cape.

2.2.5 Namakwa District Municipality: Integrated Development Plan 2017-2022

The NDM IDP contains thirteen Strategic Objectives, namely:

- Monitor and support local municipalities to deliver basic services which include water, sanitation, housing, electricity and waste management

- Support vulnerable groups
- Improve administrative and financial viability and capability
- Promote and facilitate Local Economic development
- Enhance good governance
- Promote and facilitate spatial transformation and sustainable urban development
- Improve communication and communication systems
- Establish a customer care system
- Invest in the improvement of ICT systems
- To render a municipal health service
- To coordinate the disaster management and fire management services in the district
- Implement the climate change response plan
- Caring for the environment

The IDP includes sectoral plans which are intended to ensure alignment between the different organs of state while providing input in the overall strategic objectives of the municipality. Sectoral plans include the Rural Development Plan, Climate Change Response Plan, Tourism Sector Plan, Air Quality Plan and the Housing Sector Plan.

The Rural Development Plan notes that the NDM has a competitive advantage in the energy sector with solar, wind, nuclear, wave and natural gas energy plants identified for the area. Of note is the potential for an Eskom nuclear power plant to be constructed at Klienzee. RE has recently become one of the cornerstones of NDM's economy of the District and there needs to be engagement on a National level to ensure that the district profits from this resource. The plan notes unemployment as one of the main reasons for poverty and highlights the importance of productive employment opportunities for reducing poverty and poverty and achieving sustainable economic and social development. Economic diversification is important in rural areas is crucial for bringing about rural development.

The Tourism Sector Plan is of relevance to the proposed development as it identifies existing and priority tourism clusters based on destinations and distribution points. Five such clusters have been identified. The clusters include the diamond and history cluster, the river and grapes cluster, outdoor action cluster, the Kalahari adventure cluster and the Ocean, desert and flower cluster, which the proposed power line would pass by.

Projects planned for the Nama Khoi Local Municipality of relevance include the extension of sewer works and upgrading network and bulk supply in Okiep, a town which the power line could pass by.

The proposed power line is not contrary to the aims and projects within the IDP and will aid in job creation and the diversification of the rural economy, thus supporting the economy which is especially necessary in light of climate change threatening the agricultural industry. Layout of the power line will need to be such that it does not compromise the municipality's tourism industry.

2.2.6 Nama Khoi Municipality Draft Integrated Development Plan 2018/2019

Situated in the north-western part of the Northern Cape Province; the Nama Khoi Local Municipality (NKLM) is the largest municipality in comparison to the other five local municipalities making up the Namakwa District Municipality. It is home to world-renowned tourist attractions, including large expanses of flowers in the spring and a history of Khoi-San culture. The town of Springbok functions as the administrative centre. Other communities include Steinkopf, Okiep, Rooiwinkel, Concordia, Komaggas, Buffelsrivier, Nababeep, Bulletrap, Vioolsdrift, Goodhouse, Kleinzee, and Carolusberg.

Main attractions of NKLM include its rich history and culture. The Orange River forms the northern boundary of the municipality with Namibia and provides a major tourist attraction. Tourism is noted as a major economic contributor to the municipality's economy. Historical attractions include the Blue Mine, the second oldest commercial mine in South Africa, as well as the Van Der Stel shaft mine, a National Monument in Carolusberg. The Goegap Nature reserve lies just east of Springbok, hosting a variety of game species and around 600 indigenous flower species. NKLM is an important region for conservation activities as parts of both the Greater Richtersveld and Central Namaqualand Coast biodiversity priority areas fall within the municipality.

NKLM is a hot, dry area and is prone to droughts. The municipality is further threatened by climate change, with temperatures predicted to increase and rainfall to decrease. The municipality has a vulnerable population, as a result of fairly high levels of poverty and inequality, isolated communities and a large geographical area. A large percentage of the population are directly dependent on agriculture, relying on functioning ecosystems and water regimes for their livelihoods. Climate change thus threatens food security, poverty alleviation and sustainable socio-economic growth.

NKLM was the largest contributor to the economy overall, contributing 44.1 per cent in 2004 and 35.8 per cent in 2014. Mining is a major industry and NKLM accounted for 58.1% of the mining industry for the Namakwa District municipality. The top three economic contributors to the NKLM in 2014 were Mining, Electricity and Transport.

The IDP identifies several goals for the municipality and the proposed powerline corridors could threaten the following:

- "*The tourist economy is a strong pillar of the Nama Khoi economy and an economy which is not fully exploited.*
- *The Goegap Provincial Nature Reserve may possibly be expanded and tourist resorts and accommodation should be encouraged in this area.*
- *The western part of the local municipality from the coast to the east of the N7, which has been identified as a SANBI priority area - this area is to be protected and managed.*"

The proposed project is noted as potentially supporting the following:

- "*Potentially high wind energy generation zones have been identified to the south of Vioolsdrift, and around Springbok and Koingnaas*
- *A potentially high solar energy generation zone has been identified parallel from the coast, eastward from Buffelsrivier. This area should be investigated for development of solar farms.*
- *The expansion of the Solar Corridor along N14 (as indicated in the Namakwa SDF) should be investigated.*"

2.2.7 Nama Khoi Local Municipality Spatial Development Framework, 2014

The Nama Khoi Local Municipality (NKLM) Spatial Development Framework (SDF) acts as a "spatial guideline document", which provides a guideline for assisting decision-makers in achieving sustainable development. The SDF is a tool aimed at achieving the desired spatial form and development of the municipality and needs to be consulted in order to direct public and private investments within the municipality.

Of note within the SDF is the Socio-Economic Analysis which provides a summary of the Socio-Economic conditions within the municipality, impacting spatial planning and development. Poverty is widespread throughout NKLM and large areas of the municipality can be classified as "economically marginalised areas". The municipality's population is growing at a slow but steady rate and the demand for new housing developments is not expected to be disproportionately high. A typical rural landscape can be found with many impoverished rural communities situated in remote areas, urban-rural migration is thus a common phenomenon in the municipal area. The dependency ratio and reliance on social grants is fairly high within NKLM. Elevating general education and skills levels is important to ensure meaningful employment.

Over the years mining has downscaled in the NKLM resulting in job losses. NKLM has a rich heritage, culture, and natural environment which needs to be utilised in diversifying its economy. Of note is the western coastal strip which is ideal for wind and wave energy projects. Furthermore, an Eskom Nuclear Plant could potentially be constructed at Kleinzee and a 120 MW wind farm is also planned near Kleinzee.

The SDF proposes a solar corridor from west of Springbok, stretching eastwards along the N14. A wind energy corridor is proposed just inland of the coast, running north south. With regards to tourism, the SDF states that the Tourism Corridor from Pofadder to Port Nolloth via Steinkopf must be prioritised for tourism development.

2.2.8 Khâi- Ma Local Municipality (Revised (2019/20) Integrated Development Plan (2017/18-2021/22)

KhâI-Ma Municipality's Integrated Development Plan serves as a strategic framework that guides the municipality's planning and budgeting. The vision thereof is to improve the living standards and circumstances of communities using the limited resources available.

The municipality's strategic objectives include the following:

- Eradicate backlogs in order to improve access to services and assure proper operations and maintenance;
- Promote a culture of participatory and good governance;
- Create an environment that promotes development of the local economy and facilitate job creation;
- To improve overall financial management in municipalities by developing and implementing appropriate financial management policies, procedures and systems; and'
- Improved organisational cohesion and effectiveness.

Noted within the IDP is that mining is the highest contributing sector to the municipality's economy. KMLM's mining sector has seen a positive growth rate while that of the district and province has declined. The mining company, Vedanta Zinc International, currently takes responsibility for rendering basic services to the households and other consumers in the town of Aggeneys, near Aggeneis substation.

At this stage KMLM does not have an energy plan and requires assistance in developing one as the municipality does not have the capacity.

Noted within the key performance areas are the objectives to bring poverty relief through effective basic service delivery and job creation and to assist with economic interventions in sector development which includes the RE energy sector.

2.2.9 Strategic Environmental Assessment for Wind and Solar Photovoltaic Energy in South Africa, CSIR, 2015 – Appendix A7, Socio-Economic Scoping Assessment Report

The Strategic Environmental Assessment (SEA) by CSIR for Wind and Solar Photovoltaic Energy in South Africa, was conducted with the following objectives:

- Identify areas that are the most suitable for the development of wind and photovoltaic energy projects, referred to as Renewable Energy Development Zones (REDZs),
- To coordinate the various authorities tasked with issuing the relevant authorisations and permits,
- Speed up the process for obtaining Environmental Authorisation for RE projects, and

- To provide more efficient planning in terms of the development of the infrastructure required for the RE projects.

The first phase of the assessment was to delineate focus areas for RE developments. As the proposed power line falls in the Springbok Focus Area, the review of the SEA focused on the findings specific to this area.

The supporting Socio-Economic Impact Assessment (SEIA) (Appendix A7) report for the CSIR SEA notes mining and tourism as core activities within in the Focus area, which will be industries sensitive to the potential impacts posed by future wind or photovoltaic projects.

With these two core activities in mind, the SEIA assessed the potential impacts to the Springbok Focus Area. The report found that future RE developments have the potential to stimulate the local economy. Semi-skilled and unskilled jobs that would be created could have the potential to offset the job losses that have been experienced in the agricultural and mining industries. If there are extensive future RE developments, the sterilisation of large tracts of agricultural land would negatively affect the agricultural industry. In light of this, it was recommended to integrate renewable projects with livestock grazing where possible.

With regards to tourism, future RE projects nearby or in important tourism areas will likely cause a decline in the tourism industry or a considerable opportunity cost. Likewise, the sterilisation of minerals could have high opportunity costs.

New RE developments would result in an influx of work seekers, leading to the possible expansion of existing informal settlements or the creation of new ones. The Springbok Focus Area already experiences challenges with regards to service delivery and an influx of job seekers will likely compound this issue. On the other hand, the income received by the local municipalities as a result of RE developments would assist them in improving service delivery.

While parts of the Springbok Focus Area are suitable for RE developments, large parts would not be due to mining activities, mineral resources and important tourism areas. Impacts can be mitigated by clustering developments in the central, south-eastern and some of the western parts of the Focus Area. Areas with rich mineral deposits or of high tourism value should be avoided. Where possible, solar photovoltaic developments should be integrated with livestock grazing. Local municipalities will need to plan for a potential increase in population in order to ensure that sufficient accommodation, basic and social services are available.

The report concludes that while declaring REDZs will have both positive and negative socio-economic impacts, the negative impacts can be mitigated. The development of projects within the REDZs will

need to be properly managed in order to enhance positive impacts and predict, prevent and potentially eliminate negative impacts. The direct and indirect positive impacts are expected to exceed the negative impacts, resulting in an overall positive effect on the local economies and communities.

2.2.10 Frank Vanclay: International Principles for Social Impact Assessment (2003)

This document is a statement of core values of the SIA community which is accompanied by a set of principles which were used to guide the SIA practice Enviroworks followed and the consideration of 'the social' in the EIA process. Social Impact Assessment includes the processes of analysing, monitoring and managing both intended and unintended social consequences. These consequences can be both positive or negative and are the result of planned interventions (policies, plans, projects) and the resultant social change that is invoked by such interventions. The document emphasises the importance of sustainable interactions between humans and the environment.

3 SECTION 3: OVERVIEW OF STUDY AREA

3.1 INTRODUCTION

The proposed power line development runs from just east of Kleinzee via Springbok to just west of Aggeneys. The development spans across two local municipalities, the Nama Khoi Local Municipality and the Khâi Ma Local Municipality, which are two of the six local municipalities making up the Namakwa District Municipality in the Northern Cape Province. Most of the development falls within the Nama Khoi Municipality.

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

- The relevant administrative context;
- The municipal-level social context.

3.2 PROVINCIAL OVERVIEW

3.2.1 Northern Cape Province

The Northern Cape Province (NCP) is the country's largest province in terms of land mass, having an area of 372 889 km² and accounting for 30.5% of the county's land mass. Situated in the north-western corner of South Africa the NCP is bordered by the Atlantic Ocean on its western side. The Molopo river forms the border between Botswana to the north-east and the Orange river, a key source of water for agriculture as well as alluvial diamonds forms the border between Namibia.

The NCP landscape is characterised by expansive arid plains interspersed with rocky outcrops. The majority of the province falls within the Nama-Karoo biome, with the Savanna biome to the north east

and Succulent Karoo biome along the western side. (Provincial Spatial Development Framework for the Northern Cape Province, 2018; Mucina & Rutherford, 2006).

Key towns include the capital, Kimberly, Upington which is important for karakul sheep and dried fruit, De Aar, a centre for the South African railway network, and Springbok which is situated within the Namaqualand spring flower landscape.

Well known attractions include the Big Hole in Kimberly, the South African Large Telescope (SALT), Augrabies Falls and the world-renowned annual spring flower display which attracts thousands of people.

The NCP has numerous national parks and conservation areas such as the Kgalagadi Transfrontier Park, a cross-border game park joining the Gemsbok National Park in Botswana with the Kalahari Gemsbok Park in South Africa. Others include the Augrabies Falls National Park, the |Ai-|Ais/Richtersveld Transfrontier Park, between Namibia and South Africa, and the Namaqualand National Park.

The Province has rich sources of minerals underpinning the NCP's mining industry, a key industry supporting the province. Mineral sources include the beaches and sea between Alexander Bay and Port Nolloth, where alluvial diamonds are mined, the Sishen mine near Kathu, South Africa's largest source of iron ore, and copper mines near Springbok and Aggeneys. Other minerals include marble, semi-precious stones, fluorspar and manganese.

Fertile agricultural land is found along the Orange River and supports the intensive cultivation of grapes and fruit. supplies water to the Orange River Valley (Provincial Spatial Development Framework for the Northern Cape Province, 2018; Northern Cape Municipalities, 2019).

Figure 5: Map showing the Western Cape Province within South Africa (Source: Wikipedia, 2020)

Despite being the largest province in the country the NCP only constitutes 2.1% of the country's population. As per the 2011 Census, the NCP had a population of approximately 1 145 861 (Stats SA, 2012.b). Between the 2001 census and the 2011 census the NCP experienced a 15.5% increase in population, on par with the increase experienced by South Africa as a whole (Stats SA, 2014). The population for NCP is estimated to have increased to 1 263 875 in 2019, a 10.3% increase (Stats SA, 2019).

The Northern Cape has a higher number of females to males, with a sex ratio of 97.3 males per 100 females. With regards to age structure, 30.1% of the population is under 15 years of age, while 64.2% is between 15 and 64 years with 5.7% 65 years or older. The population pyramid (**Figure 6)** indicates that the NCP has a high birth rate and a youthful population.

Provincial population age structures and distribution are affected by migration. The decrease in population between the 25-29 and 30-34 age groups is possibly due to emigration, as job seekers leave the province in search of work (Statics South Africa, 2014).

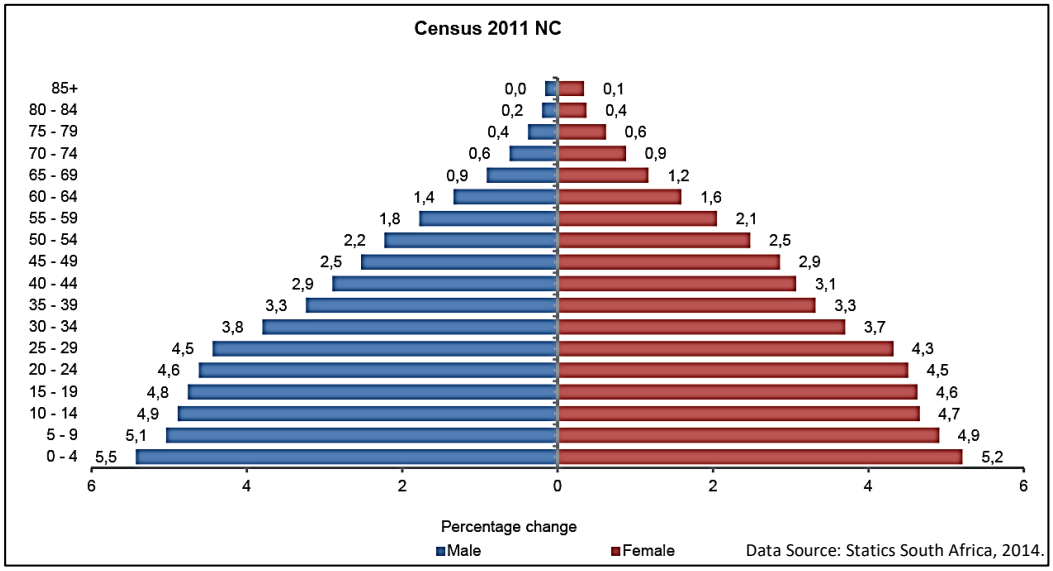


Figure 6: Population pyramid of the Northern Cape Province.

With regards to population groups, the majority of the population is black African, 50.4%. The coloured population makes up the second largest population group, 40.3%. 7.1% are white and 0.7 are Indian/Asian. Interesting to note is that between 1996 and 2011, the province has seen an increase in the black African population group and a decline in the other population groups.

Afrikaans is the most widely spoken language in the Northern Cape, with 53.8% of the population speaking it as their first language. This was followed by Setswana, 33.1%, isiXhosa, 5.3%, and English, 3.4%. Various other languages make up the remaining 4.4% (Stats SA, 2014).

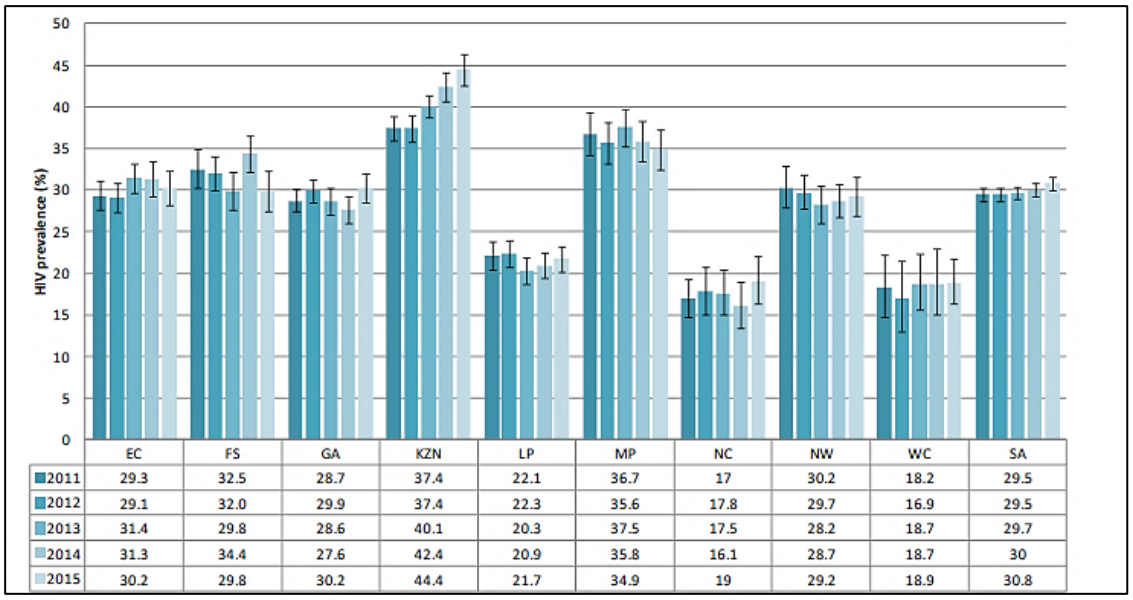
The dependency ratio indicates the burden placed on the population of working age, between 15 and 64 years, who support children under 15 years and people over 65 years. Despite a youthful

population, the dependency ratio for the NCP has been decreasing over the years, from 65,8 in 1996 to 55,8 in 2011. As of 2011, the unemployment rate for the Northern Cape was 28.1%, slightly lower than the national average of 29.8% (Stats SA, 2012.a; Stats SA, 2012.b).

According to the 2011 Census, there were 304 405 households within the NCP, with an average household size of 3.8. The average household income was R86 183 per annum. 84.5% of households lived in Formal Dwellings, while 11.5% lived in Informal Dwellings and 2.9% lived in Traditional Dwellings. Of the households, 65.2% were owned (either fully or not yet fully paid off), 14.4% were rented and 20.4% were occupied 'rent free'. With regards to household services, 69.2% of households had access to a type of 'flush toilet' and 79.7% had access to piped water within their dwelling. 89.3% of households used electricity for lighting and 68.9% had weekly refuse removal (Stats SA, 2014; Stats SA, 2012.a).

Education levels in the NCP have improved over the years, with the percentage of those achieving grade 12 increasing from 15.8% in 2001 up to 23.0% in 2011 (Stats SA, 2014). This improved to 32,1% in 2016 (Northern Cape Provincial Treasury, 2018).

With regards to health matters, the NCP has the highest life expectancy of the nine provinces. Life expectancies are estimated at 59.1 years for males and 66 years for females (Stats SA, 2019). Based on a 2015 survey, the NCP has the second lowest prevalence of HIV (National Department of Health, 2015).



	EC	FS	GA	KZN	LP	MP	NC	NW	WC	SA
2011	29.3	32.5	28.7	37.4	22.1	36.7	17	30.2	18.2	29.5
2012	29.1	32.0	29.9	37.4	22.3	35.6	17.8	29.7	16.9	29.5
2013	31.4	29.8	28.6	40.1	20.3	37.5	17.5	28.2	18.7	29.7
2014	31.3	34.4	27.6	42.4	20.9	35.8	16.1	28.7	18.7	30
2015	30.2	29.8	30.2	44.4	21.7	34.9	19	29.2	18.9	30.8

Data Source: Antenatal Sentinel HIV and Syphilis Survey, 2015

Figure 7: HIV prevalence by province - 2011 - 2015.

3.3 MUNICIPAL-LEVEL OVERVIEW

3.3.1 Namakwa District Municipality

The Namakwa District Municipality (NDM) is situated in the north-western corner of South Africa and is bordered by the Atlantic Ocean to the west, Namibia to the north, ZF Mgcawu and Pixley ka Seme District Municipalities to the north-east and east, respectively and the Western Cape Province to the south. The NDM is made up of six local municipalities, namely Richtersveld, Nama Khoi, Khai Ma, Kamiesberg, Hantam and Karoo Hoogland. The district has an area of 126 836km², making it the largest district municipality in South Africa, with the town of Springbok functions as the administrative centre. The National Route 7 (N7), an important transport route, passes through the district.

The main economic sectors contributing to the district are agriculture, mining, mari-culture, tourism, industry and electricity. Between 2003 and 2013, the tertiary sector had the highest contribution to the economy with an average annual contribution of 63.1%. This was followed by the primary sector contributing an annual average of 33.8%.

The agricultural sector is the second largest employer in the district and includes stock-farming and the cultivation of various fruits along the Orange River. Abalone and oyster production along the western coast offer further opportunities which could be developed.

Mining is a major economic contributor to the NDM and occurs in four of the six local municipalities. Minerals mined include diamonds, copper, zinc, lead and granite. Several of the mines have come to the end of their economic life, which has led to a number of mines that have either closed or are about to close. One of the largest mines, O'kiep Copper Company, is one such mine that has closed. The closure of mines has had a large negative impact on the district's economy.

The NDM had the highest solar radiation intensity in Southern Africa, making it an ideal location for of solar projects. Wind, wave and nuclear energy have also been identified as renewable energy sources which could potentially support the energy sector (Namakwa District Municipality: IDP, 2017).

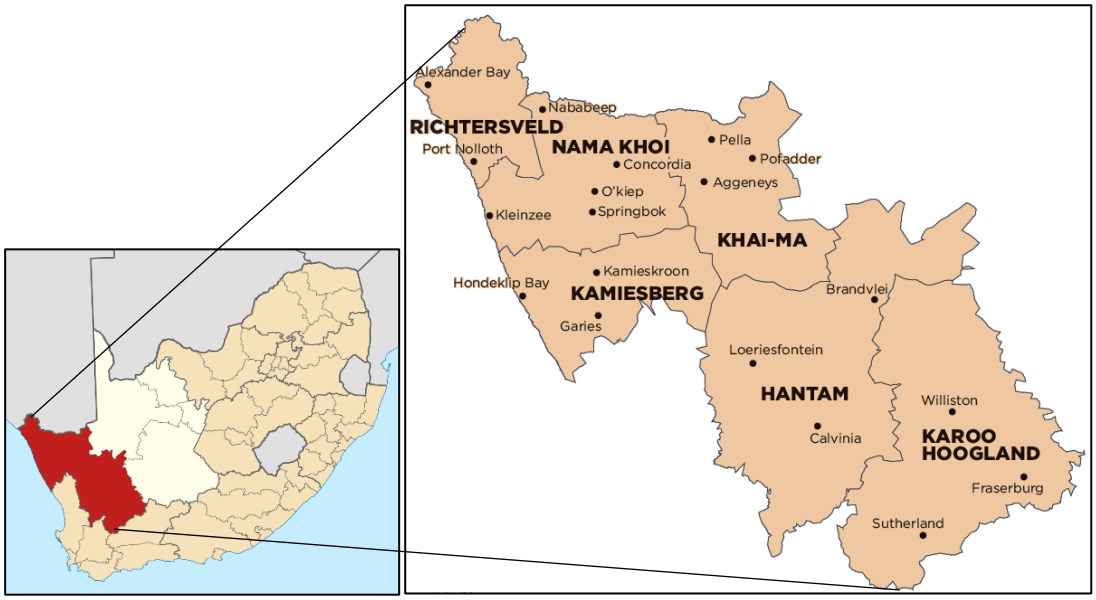


Figure 8: Map showing the NDM and the five Local Municipalities within it.

In terms of demographics, the NDM has a population of 115 489 people as of the 2016 community survey. census. Between 2001 and 2011 the NDM experienced the lowest population increase of 7.15%, half that of the Province, 15.5%, during the same period. 49.6% of the population are female and 50.4% are male. (Stats SA, 2016).

The Coloured population are the largest population group within the district, making up approximately 83.2 of the population. Approximately 8.7% percent if the population are white, 6.8% are black African, 0.5% are Indian/Asian and 0.7% are classified as Other (Stats SA, 2014).

The vast majority of the population, 96.5%, of the speak Afrikaans as their first language. IsiXhosa is spoken by 0.9% of the population and English by 0.7%. (Stats SA, 2016).

Based on the 2016 Community Survey, the district has a total of 37 699 households. Of the households 95.2% live in Formal Dwellings, with 72.6% living in houses that were either owned or being paid off, and 10.4% of households rented. Piped water is supplied directly to 96% of the households, with 81.4% having access to flush toilets. 84% and 7.7% of households had in-house pre-paid and conventional electricity meters respectively. 86.2% of households had their refuse removed by a service provider on a regular basis. (Stats SA, 2016). Average household incomes for the district are shown in **Figure 9** below.

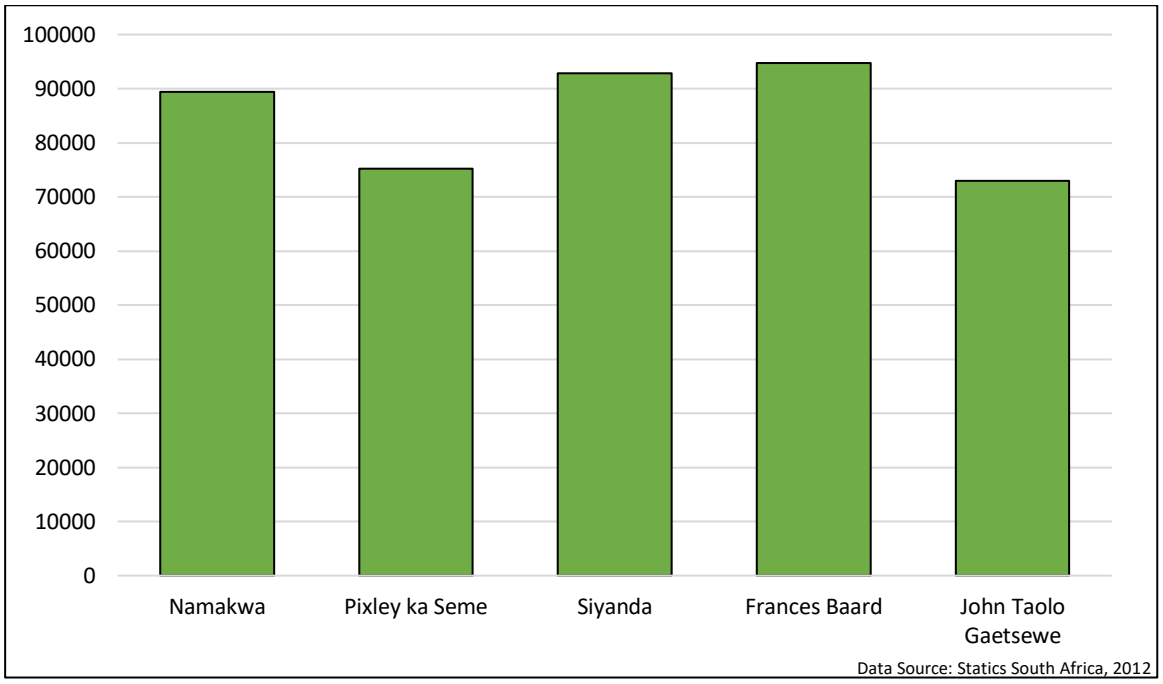


Figure 9: The distribution of average household income (R) in 2011 for the Namakwa District Municipality compared with the other district municipalities in the province.

3.3.2 Nama Khoi and Khâi Ma Local Municipalities

Situated in the north-western part of the Northern Cape the Nama Khoi Local Municipality (NKLM) is the economic hub of the Namakwa District Municipality. The NKLM has an area of approximately 14 921 km^2. The municipalities settlements are largely distributed across the municipal area and include Steinkopf, OKiep, Nababeep, Concordia, Carolusberg, Rooiwinkel, Komaggas, Buffelsrivier, Bulletrap, Vioolsdrift, Goodhouse, Kleinzee, and Springbok, the administrative centre. Many of the settlements were established near mining areas, situated between rocky outcrops, limiting their possibility for further outward expansion.

The NKLM has four distinct biogeographical regions within its boundaries, with the Orange River to the north, coastal plains to the west and granite hills transitioning into Bushmanland plains to the east. NKLM has a low rainfall varying from 20-300mm.

Over the years the mining industry has seen a decline while tourism has grown to become key economic contributor to the municipality. The municipality has a rich cultural heritage and is known as the land of the Nama people. The area is well known for its spring-time flowers, attracting thousands of tourists each year. Other attractions include the Orange River, Goegap Nature Reserve, the Blue Mine, the Namakwa Festival and two national monuments, namely the Van Der Stel Mine Shaft and Orbicule Hill.

NKLM has a predominantly rural nature, with a large part of the population relying on agriculture. Partially due to this, a number of challenges face the municipality such as a low level of economic growth, a lack of economic diversification and high unemployment rates. Climate change further

threatens the already drought prone municipality, threating agricultural livelihoods as well as the municipality's ability to provide water (Nama Khoi IDP, 2018; Nama Khoi SDF, 2014).

Khâi Ma Local Municipality (KMLM) lies directly west of the NKLM. The municipality is classified as a Category B municipality and shares executive and legislative power with the Namakwa District Municipality. The municipality has five towns, namely Pofadder, Aggeneys, Pella, Witbank and Onseepkans.

The KMLM has an area of 16 628 km² and is sparsely populated, having approximately 1 person per square kilometre, with most of the population residing in the five towns. The landscape is characterised by extensive areas of land, an untouched natural environment and unique mountains. With limited cellular reception the municipality which could be considered an attraction for those trying to evade the busy urban life.

The main economic contributors to the municipality are agriculture, tourism, renewable energy and social and personal services. Challenges facing the KMLM include poverty, unemployment and a lack of service delivery.

Demographics – Nama Khoi and Khâi Ma Local Municipalities

From 2011 to 2016 Nama Khoi Local Municipality (NKLM) had a population growth of -0.3% per annum. The population of NKLM decreased from 47 041 in 2011 to 46 512 in 2016, representing a 1.13% decrease. The sex ratio is 96.4 males per 100 females.

Between the 2011 and 2016 the Khâi Ma Local Municipality (KMLM) decreased from 12 446 people to 12 333, a 0.9% decrease or a growth rate of - 0.2% per annum. The sex ratio for KMLM was 111.8 males per 100 females (Stats SA, 2018).

Regarding the age structure of the NKLM population, the majority of the population, 68.1%, falls within the 15-64 age bracket. 21.4% of the population are younger than 15 years old and 10.5% are 65 years or older (Stats SA, 2018). As per the 2011 census, NKLM has a dependency ratio of 49.4, lower than that of the province which was 55.7. The population pyramid for NKLM, using data from the 2011 survey, is illustrated in **Figure 10** and shows a decreasing birth rate and increasing life expectancy.

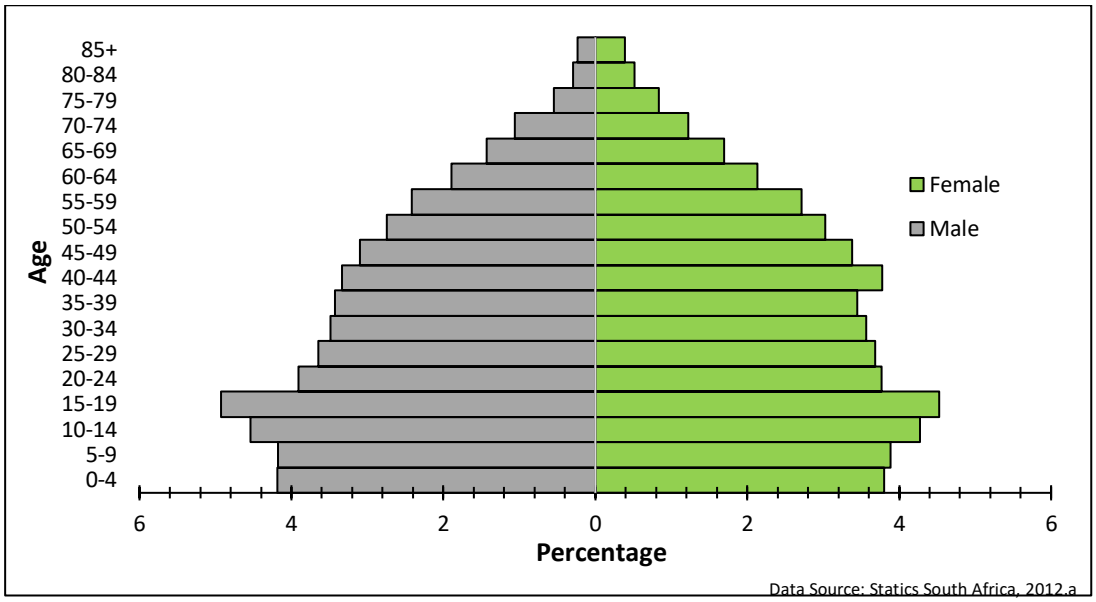


Figure 10: Population pyramid of the Nama Khoi Local Municipality.

The majority of the KMLM population, 71.6%, falls within the 15-64 age bracket. 22.1% of the population are younger than 15 years old and 6.2% are 65 years or older (Stats SA, 2018). As per the 2011 census, KMLM has a dependency ratio of 45.7, lower than that of the province which was 55.7. KMLM has an interesting population pyramid with a large portion of the population falling with in the 20 – 45 age group, which may be an indication of immigration. The population pyramid for KMLM is illustrated in **Figure 11**.

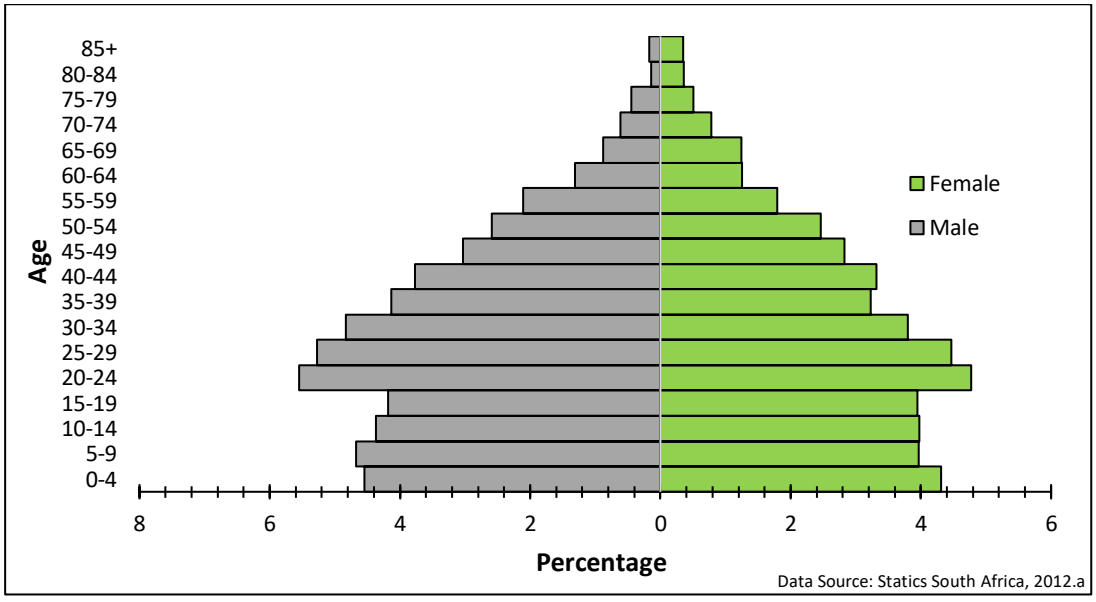


Figure 11: Population pyramid of the Khâi Ma Local Municipality.

Population Groups and Languages

Of the 46 512 people within the NKLM the vast majority, 93%, are coloured. The coloured population made up a slightly lower percentage of KMLM's population, 89.2%. A comparison of the population groups at the various municipal levels is shown in **Table 1** (Stats SA, 2012.a). In terms of language, Afrikaans is spoken by the majority of both NKLM and KMLM, 95.94% and 83.25% respectively. Other

languages spoken in NKLM are isiXhosa, 1.04%, and English, 0.99%. KMLM had a relatively high percentage of Setswana speakers, 10.95%, followed by isiXhosa, 2.22%, and English 1.18% (Frith, 2011).

Table 1: Population groups within the Northern Cape Province, Namakwa District Municipality and Nama Khoi and Khâi Local Municipalities (Stats SA, 2018).

Population Group	Northern Cape Province (%)	Namakwa (%)	Nama Khoi (%)	Khâi Ma (%)
Black African	48.1	2.3	1.4	2.8
Coloured	43.7	88.1	93	89.2
Indian/Asian	0.5	0.3	0.1	1
White	7.7	9.3	5.5	7.1

Households

NKLM had a total of 14 547 households with an average household size of 3.2 persons. Of the households, 41% were female headed households and 6 households were child headed. There has been an increase in female-headed households within NKLM, as is the general case for the Namakwa District and Northern Cape Province.

KMLM had 4 079 households with an average household size of 3 persons. Of the households, 34% were female headed households and there were no child-headed households. KMLM has seen a smaller increase in the number of female headed households since 1996 compared to NKLM and decreased slightly between the census in 2001 and 2011 and between the 2011 census and 2016 community survey.

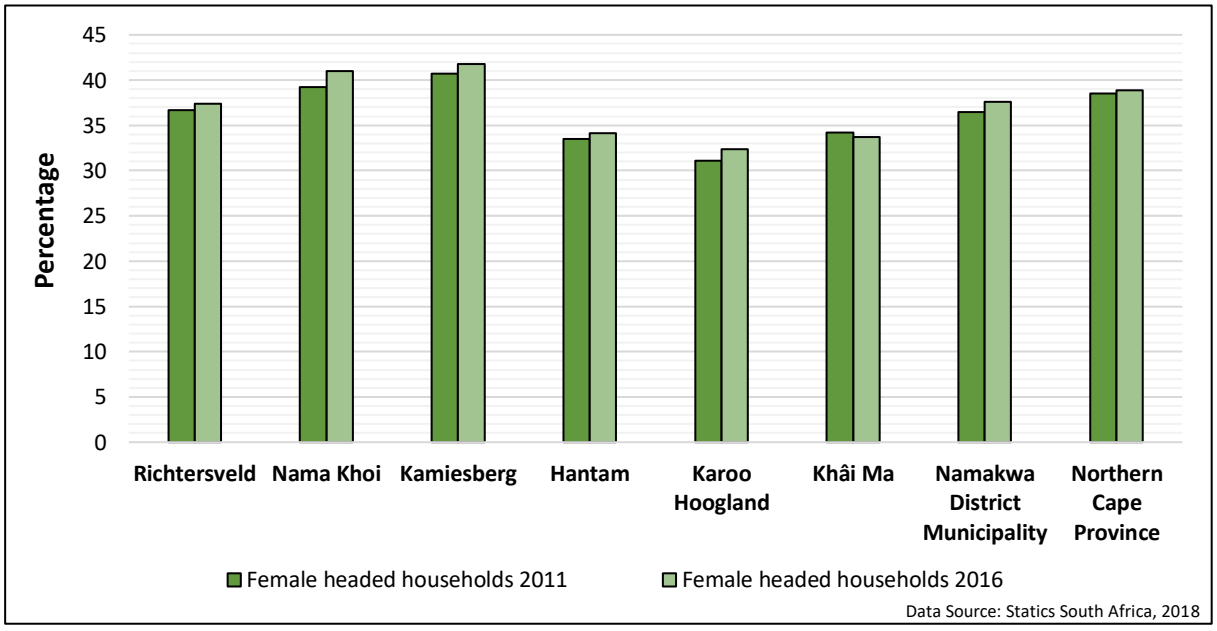


Figure 12: Percentage of female headed households.

Household income is a key factor in determining the welfare of a region. Households with either no income or a low income are classified as falling within the poverty level and may struggle to meet basic

needs. Of the six local municipalities only one, Kamiesberg, saw a large decrease in average household income between 2001 and 2011. Average household incomes for the province, district and local municipalities are shown in **Figure 13**.

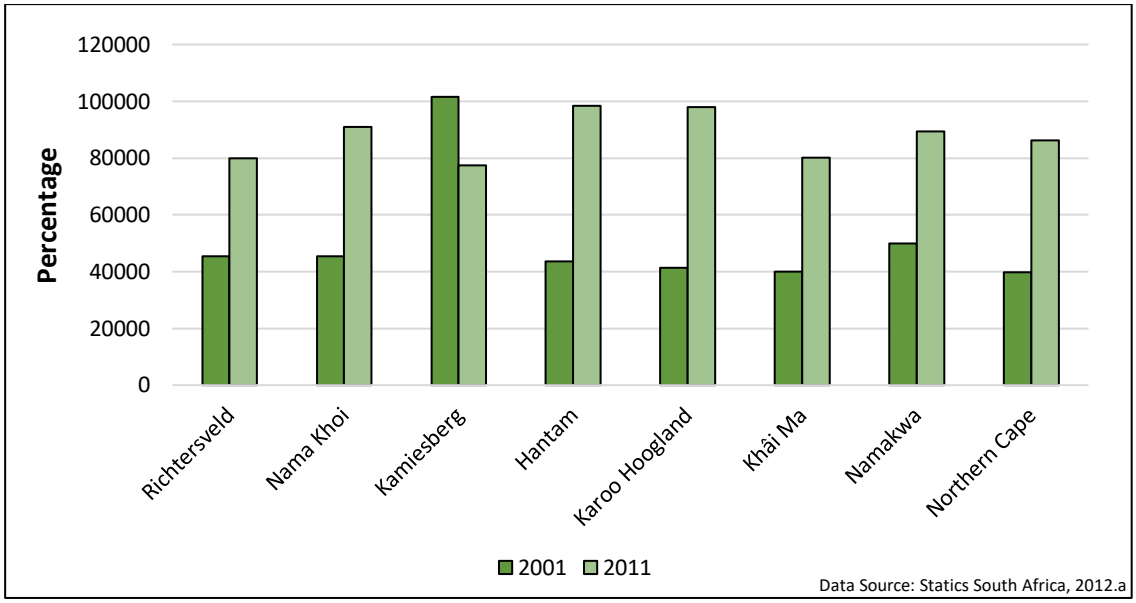


Figure 13: Average annual household income per household (R).

The 'poverty level' is classified as persons either having no income or earning less than R38 201 per annum. When looking at the different income brackets, a high percentage of the population for both local municipalities fall within the poverty level, 55.2% and 56% for NKLM and KMLM respectively. Middle- and high-income brackets are classified as those earning an average annual income between R38 201 - R307 600, and R307 601 or more respectively. NKLM had 39.7% and 5.3% of households falling within the medium- and high-income brackets respectively. Households falling within the medium- and high-income brackets for KMLM were 39.1% and 4.9% respectively. Both municipalities had a relatively high percentage of households with no income and more than half of the households fell within the poverty level income bracket. This will have related social impacts with a large portion of households likely struggling to afford basic services.

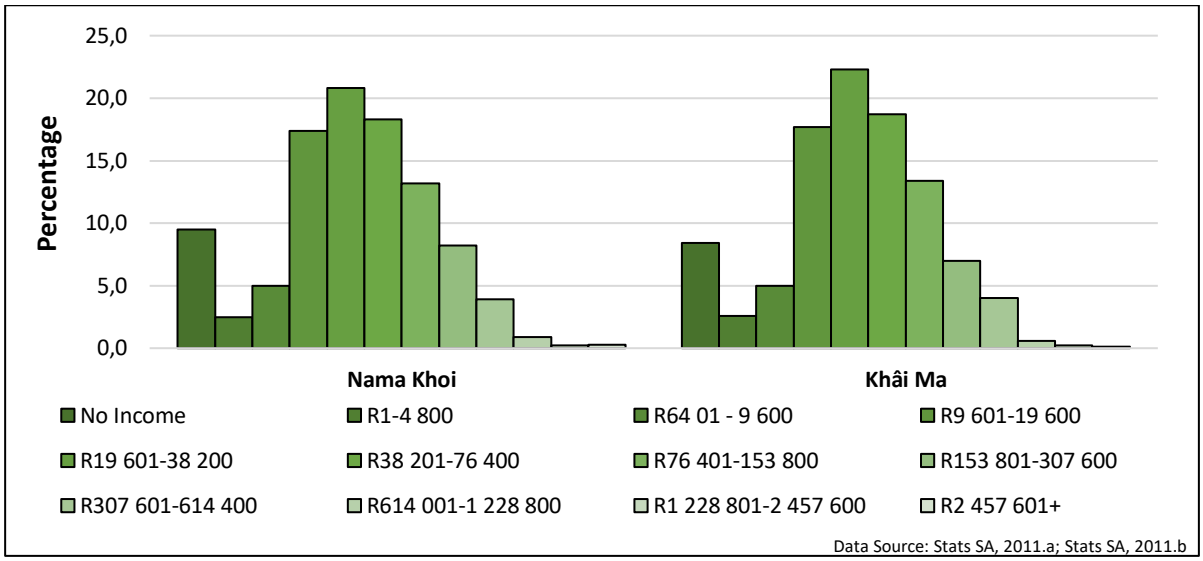


Figure 14: Annual average household income for the Nama Khoi and Khâi Ma Local Municipalities.

In terms of housing, most of the households within both NKLM and KMLM resided in formal dwellings, 93.6% and 92.4% respectively, in 2016. The remaining 6.4% and 7.6% lived either in informal, traditional or other dwellings (Stats SA, 2018). 72,5% of NKLM households lived in houses that were either owned or in the process of being paid off whereas only 46.6% of KMLM's households owned their house or were in the process of paying it off (Stats SA, 2012.b).

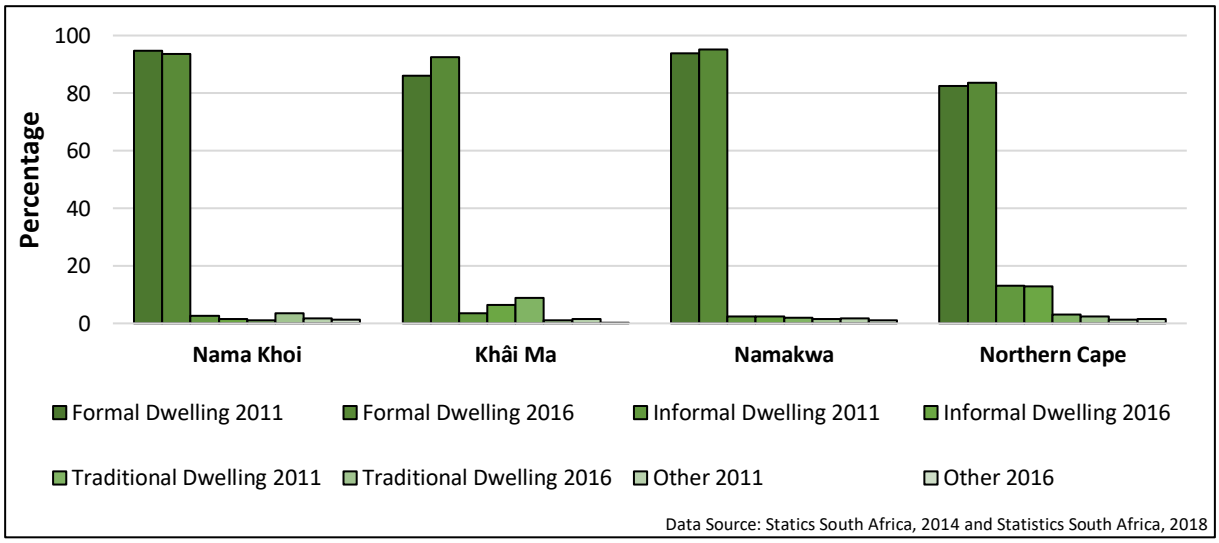


Figure 15: Household dwelling types for 2011 and 2016.

Households have the right to certain basic services. **Figure 16**, below, shows the percentage of households with access to these basic services for NKLM and KMLM compared to those of the district and province. Both municipalities typically had better service delivery when compared to the province.

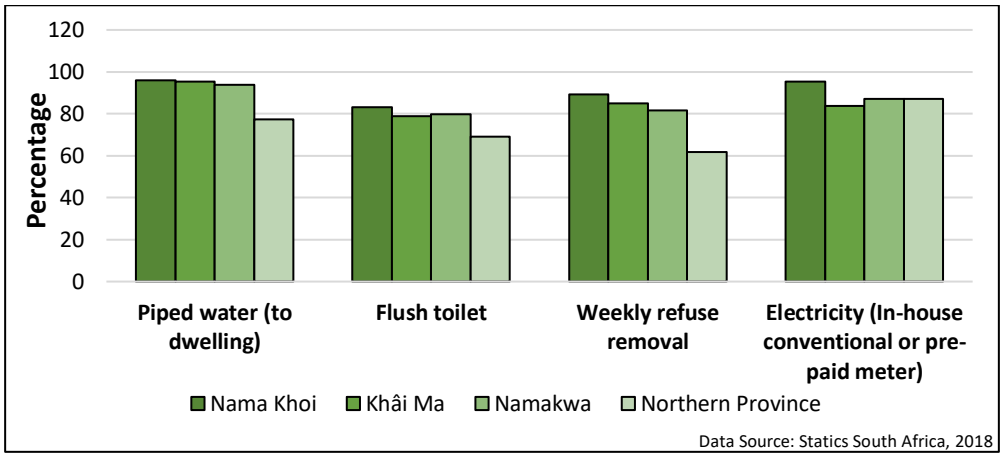


Figure 16: Access to household services, based on the 2016 Community Survey.

Education Levels

Education is a crucial factor in creating widespread, meaningful employment opportunities and strengthening the municipalities' economies. Improving levels of education is critical for economic development and improving standards of living. In terms of education KMLM had lower levels of education than NKLM, the district and the province. As indicated in **Figure 17**, the percentage of those with no schooling has decreased and those completing matric and higher education has increased. Despite improved education levels since the 2001 census less than 30% of the population of both NKLM and KMLM have completed matric or some form of higher education. Improving education levels is a key factor in reducing unemployment and will need to be addressed in order to improve living standards. Poor education levels are likely a result poverty.

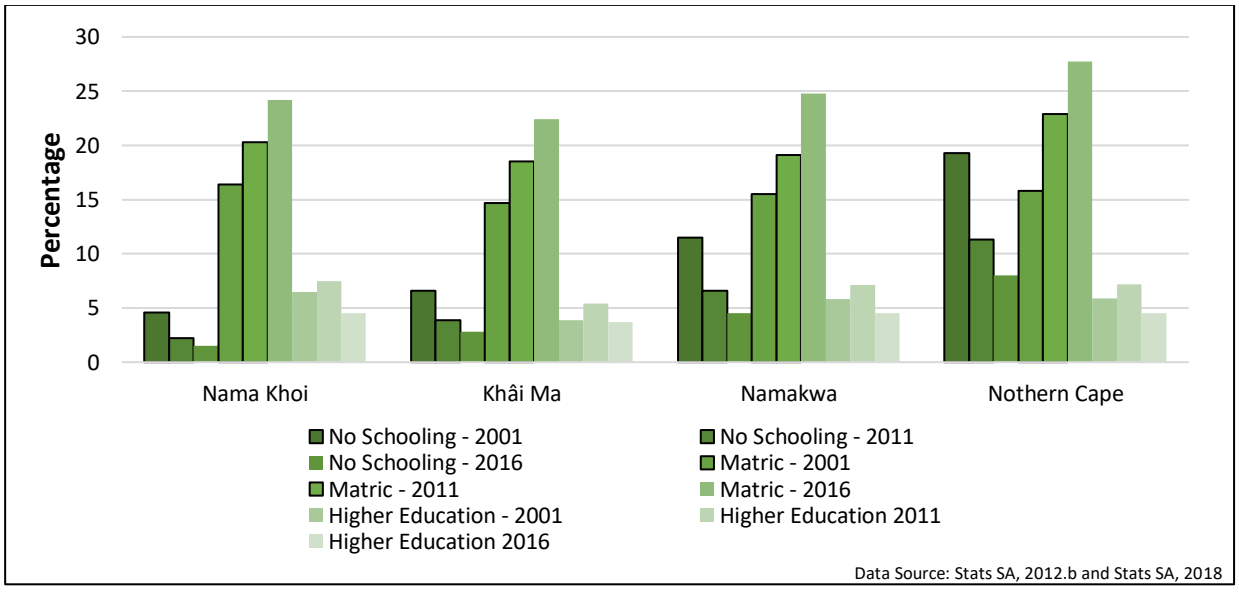


Figure 17: Level of education achieved for those over 20 years of age.

Unemployment

Members of the population falling within the 15-64 years age bracket are classified as being of working age. 'Economically active' persons are defined as those that are either currently employed or actively

seeking employment. NKLM had an economically active population of 31 477 people, or 66.9% of the population. Of those classified as 'economically active' 12 351 were employed and 3 665 were unemployed. NKLM had a dependency ratio of 49.4 in 2011, a decrease from 52.5 in 2001. The unemployment rate was 22.9.

KMLM had a higher percentage of its population employed and a lower dependency ratio, 45.7, than the NKLM. KMLM had an economically active population of 8 555 people, or 68.6% of the population. Of the 'economically active' component of the population 4 600 were employed and 1 304 were unemployed. KMLM had a larger decrease in its dependency ratio than NKLM, decreasing from a ratio of 51.8 in 2001 to 45.7 in 2011. The unemployment rate was 22.2 (Stats SA, 2012.a; Stats SA, 2011.a; Stats SA, 2011.b)

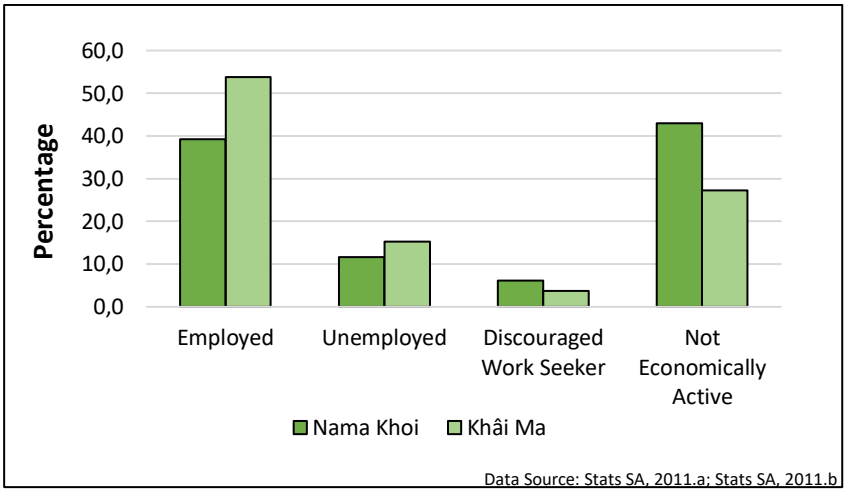


Figure 18: Employment status for those aged 15 – 64 within the Nama Khoi and Khâi Ma Local Municipalities.

SECTION 4: CONSULTATION PROCESS

4.1 PUBLIC PARTICIPATION PROCESS FOLLOWED

A site visit to the proposed development sites and surrounding areas was conducted over a one-week period from 14 - 18 October 2019.

Interested and Affected Parties were identified using the following sources:

- Eskom database of landowners for properties traversed by the existing line;
- Windeed searches of the properties traversed by the alternatives;
- Consultation with key Organs of State
    - Department of Rural Development and Land Reform,
    - Department of Minerals Resources,
    - Nama Khoi Local Municipality,
    - Namakwa District Municipality,
    - Namakwa District Municipality,
    - Department of Transport, Safety and Liaison;

- Consultation with I&APs;
- Review of the public participation process for previous studies;
- Database of applications for renewable energy projects across South Africa;
- An internet search for mining companies and guesthouses in the area;
- A physical drive along the proposed route alternatives;
- A request was submitted to the Department of Rural Development and Land Reform for a list of Land Claims lodged for the properties traversed by the route alternatives; and,
- A Request for Information was submitted to the Department of Mineral Resources, in terms of Section 18 (1) of the Promotion of Access to Information Act, 2000 (Act No. 2 of 2000) [Regulation 6] , in order to access any mining and/or prospecting rights held for the properties traversed by the route alternatives.

Landowners were identified through the following:

- Contact details for the landowners of properties traversed by the existing power line were provided by Eskom;
- Windeed searches of the properties traversed by the alternative routes;
- During the meeting with the Agri Namakwaland Farmers Association the farmers were presented with a large map of the area and asked to identify their farms as well as neighbouring farms; and,
- Consultation with Organs of State.

During the site visit various methods were employed to notify and solicit comments from Organs of State and Interested and Affected Parties (I&APs) including:

- Hard and soft copies of the Background Information Document (BID) were distributed
    - Via email, where possible,
    - Via WhatsApp Messenger,
    - Via a WhatsApp Messenger group, comprising members of the Agri Namakwaland Farmers Association,
    - At the meeting held with Agri Namakwaland and the meetings held with Organs of State,
    - BIDs were given to representatives of the Nama Khoi Municipality for them to distribute via their channels, and
    - Opportunistically during the drive-through site visit to guesthouses and landowners/tenants,
- A public meeting was held with the Agri Namakwaland Farmers Association and local farmers;
- Meetings where held with key Organs of State, as listed above;
- Site Notices were placed at public places within the study area; and,
- Newspaper adverts were placed, in both English and Afrikaans, in two newspapers.

A 30-day period, from 18 October 2019 to 18 November 2019, was provided to all I&APs for them to provide comments and raise any concerns.

During the visit various consultations were held, as shown below:

Table 2: Interviews conducted by Enviroworks.

Date	Interested and Affected Parties	Affiliation
14/10/2019	Farmers from the Agri Namakwaland Farmers Association.	Agri Namakwaland Farmers Association
14/10/2019	Jacques Cloete and Quentis Titus	Nama Khoi Local Municipality
16/10/2019	-	Naries Namakwa Retreat
17/10/2019	Thapelo Sekia	Namakwa District Municipality Department of Transport, Safety and Liaison
18/10/2019	Christiaan Fortuin, Joseph Cloete, Quentis Titus	Namakwa District and Nama Khoi Local Municipality
18/10/2019	Chrizelle Farmer and Thsifhiwa Mukwevho	Department of Mineral Resources

Proof of public consultation process can be found in the PPP Report, Appendix B.

4.2 SUMMARY OF COMMENTS RECEIVED

Relatively little feedback was received during the allotted commenting period. The following provides a summary of the comments received during the site visit and the 30-day commenting period. All comments and minutes from meetings can be found in the PPP Report, Appendix B. All comments received by I&APs were taken into consideration in the preparation of this report.

A summary of comments received is provided below:

Compensation

- No negative issues were raised by farmers and in general they were in support of the power line considering the compensation that would be received. The area is in a severe drought and farmers are struggling to continue with normal farming activities.
- One of the farmers stated that he would willing offer part of his farm for a construction camp site for the power line in return for compensation.
- One of the persons consulted, who resides on communal land, noted that it would be appreciated if the Proponent could provide compensation to the affected parties [communal landowners], for example a borehole or electricity supply.

Accessibility

- Access to the existing power line is limited between Gromis and Nama Substations. This causes delays when infrastructure needs to be repaired.

Environmental Implications

- A section of one of the route alternatives passes through the Goegap Nature Reserve which may negatively impact large terrestrial bird species.

Infrastructure Planning

- The Nama Khoi Municipality have plans for a pipeline supplying water to houses in OKiep. This infrastructure will be situated in and around residential areas and is thus unlikely to affect potential power line routes. Maps of the proposed routes were provided to the municipality officials for them to evaluate.

Guesthouses/Tourism

- No comments were formally received from any of the guest houses. However, in discussion with a staff member from the Naries Namakwa Retreat guesthouse, it was noted the guesthouse has recently constructed a new look out point, the Gemsbok Lapa, which overlooks the valley to the north and west of it. The Proponent will need to take the potential visual impact into consideration.

SECTION 5: KEY SOCIAL ISSUES

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

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

The categories listed above may, at times, overlap as certain impacts may affect more than one category. Impacts are expected to occur during the construction, operational and decommissioning phases. The seven categories will now be discussed as they apply to the proposed powerline, across the construction and operational phases.

5.1 HEALTH AND SOCIAL WELLBEING RELATED IMPACTS

The health and social wellbeing impacts related to the proposed development include:

- Increased dust and noise

- Potential increase in crime
- Health implications
- Positive psychological effects

5.1.1 Increased dust and noise

Construction activities may cause excessive dust, particularly during dry, windy periods. High atmospheric dust levels will create a nuisance impact and could lead to health problems such as silicosis. The development site predominantly consists of a sandy substrate and the persistent drought has led to many areas with no vegetation cover. Agricultural activities likely already cause dust, thus dust resulting from construction activities may cumulate impacts.

The increase in noise is only applicable to the construction phase. Noise from construction activities such as excavating, and the operation of large machinery or construction vehicles are not characteristic of the development site. The surrounding landscape is rural in nature and uncharacteristic noise will disturb the 'sense of place'. This may impact nearby residents and holiday goers who are seeking the tranquillity and quietness associated with the proposed site. As the landscape is sparsely populated, dust and noise will only cause an impact when activities are in close proximity to people.

5.1.2 Potential increase in crime

The construction and decommissioning phase will see a number of construction staff frequenting the development site and farms, to which access is typically strictly controlled. Additionally, knowledge of construction on the power line may lead to an influx of people seeking employment opportunities.

The rural nature of the site and considerable distances between farmsteads makes farmers particularly vulnerable to crime. This will likely have a psychological effect on some of the people living in the surrounding area who will feel their safety is at risk. There is potential to mitigate this through information sessions and the use of existing communication platforms, such as the Agri Namakwaland farmers WhatsApp Messenger group. Once construction is completed the probability of crime, as a result of the power line, will decrease and this fear will likely subside. The potential for job creation during the construction, operational and decommissioning phases could help with mitigating the potential for an increase in crime.

5.1.3 Health implications

With the work force residing in the area as well as a potential influx of job seekers, the possibility for the spread of HIV/AIDS is increased during the construction phase. Dust generated as a result of construction activities can potentially cause health problems such as silicosis. Dust levels will be at the highest during the dry, windy months of the year. These impacts will be able to be mitigated, for the most part, through information sessions and dust suppression measures.

5.1.4 Positive psychological effect

Knowledge of the construction activities and prospective future IPP developments in area could impart a renewed sense of hope and anticipation within communities in terms of future employment opportunities and economic development. While difficult to quantify, such impact could greatly improve the moral of impoverished communities. This has the potential encourage children to complete their education in the hopes of obtaining work on future IPP projects. The prospects of an improved network structure and electricity supply will also carry positive psychological effects.

5.2 QUALITY OF THE LIVING ENVIRONMENT IMPACTS

Impacts associated with the quality of the living environment include:

- Disruption of daily living
- Loss of the area's sense of place

5.2.1 Disruption of daily living

During the construction phase there will be a number of workers and construction vehicles frequenting the area and noisy activities. Farmers will need to provide access to the development site which will necessitate the opening and closing of gates. Increased traffic on the access road could interfere with farming activities. These factors can cause the disruption of daily life amongst families and farming communities. The potential for this impact will be higher for larger workforces being accommodated close to or in existing urban areas. The anticipation of future economic growth could offset the negative impacts posed by disruptions.

5.2.2 Loss of sense of place

'Sense of Place' can be described as the way people feel about or perceive a place, often based on its physical and acoustic characteristics. Increased traffic and noise during the construction phase will temporarily disturb the areas sense of place. Operational phase impacts associated with the power line include its visual intrusion. The development site is characterised by attractive landscapes, particularly during the flower season, and impressive views such as along Spektakel Pass. The development site and surrounds are predominantly characterised by agricultural and nature based recreational activities. An existing power line traverses the study site from east to west, predominantly following the National Route 14 (N14) and Route 55 roads. Constructing a new power line through scenic areas, devoid of industrial infrastructure, will likely detract from the visual aesthetics of the area and could result in areas shifting from a 'rural feel' to a more 'industrial feel'.

5.3 ECONOMIC AND MATERIAL WELLBEING IMPACTS (NEGATIVE)

Negative economic and material wellbeing impacts associated with the proposed amendment include:

- Tourism may be affected in the area

5.3.1 Decreased tourism potential for the surrounding area

Disturbances to the area's 'sense of place' could lead to a decrease in the tourism potential. Tourism is an important economic contributor to the economy of Springbok and the surrounding areas. Impacts to tourism will occur during the construction phase in the form of a temporary increase in noise, dust and activity which will impact visitors' experience of the area. The chief impact associated with the operational phase is the potential for visual intrusion. Should the visual characteristics of the development site be negatively affected by the power line tourists may experience a decrease in satisfaction and may seek out other destinations without the intrusion of 'industrial' elements. Poor placement of the power line could affect businesses relying either directly or indirectly on tourism. A decrease in tourists to the area would negatively affect the local economy and likely lead to job losses. A Visual Impact Assessment has been conducted as part of the Screening Assessment in order to assess the visual impacts to identify a route that presents the least visual intrusion.

5.4 ECONOMIC AND MATERIAL WELL BEING IMPACTS (POSITIVE)

Positive economic and material benefits associated with the proposed power line include:

- Benefits for landowners receiving compensation
- Increased employment opportunities during the construction phase
- Increased infrastructure capacity for Independent Power Producers (IPPs)
- Potential knock-on effects

5.4.1 Increased employment opportunities during the construction phase

During the construction phase skilled and unskilled labour will be needed. Skilled positions will likely be filled by existing employees while unskilled labour could potentially be sourced from the surrounding communities. Any new employment opportunities will benefit those employed and their dependents. Employment benefits will be temporary and last the for the construction period.

5.4.2 Benefits for landowners receiving compensation

Where the power line traverses privately owned land, the landowners will be compensated. The extra income will benefit farmers, particularly as the development site is in a severe drought, greatly reducing the income usually generated by farming. Where the line passes through communal land the Proponent could consider other forms of compensation that will uplift the communities.

5.4.3 Economic knock-on effects

During the construction phase some of the income received by staff will be spent in the surrounding areas on services such as hospitality and entertainment which will have temporary benefits for the local economy. Facilitating the growth of IPPs will create future long-term job opportunities and support the National provision of electricity. With climate change threating the viability of agriculture and the limited lifespan of mineral resources, further IPP developments in the area will aid in diversifying the local economy. Furthermore, with declines being experienced in the mining and

agricultural sectors the unskilled and semi-skilled job opportunities provided by IPP developments will help absorb job losses in these industries. IPPs also have obligations for socio-economic development and enterprise development which will further benefit the surrounding communities. The effects of job creation resulting from new IPP developments is likely to have far reaching affects. Job creation will likely decrease crime levels and will equip households with the financial means to provide their children with a good education.

While the tourism industry could be negatively impacted during the construction phase, it may indirectly benefit from the from the power line once it is operational. As the power line will facilitate new IPP developments, there will be an influx of professionals working on these developments. This will expose people to the areas tourism potential who otherwise would not have been.

5.5 CULTURAL IMPACTS

Culture and cultural practices are an important part of who people are and how they maintain their identity. Springbok and surrounding towns, such as OKiep and Nababeep, have a rich cultural history, particularly with regards to Nama (Khoi San) culture. The Cultural impacts associated with the power line include the following:

- The power line may detract from areas of cultural/heritage importance
- Decreased availability of medicinal plants for traditional doctors

5.5.1 Detracting from important cultural/heritage areas

Some of the historical and cultural assets to the area include the Blue Mine, the Klip Kerk, the Namakwa Festival and two national monuments, namely the Van Der Stel Mine Shaft and Orbicule Hill. Certain sites may hold cultural significance for certain people groups, for example they a site may be of spiritual significance.

During the construction phase associated activities may detract from a visitor's experience if these activities take place nearby important sites. Once operational the proposed power line may detract from the area's 'sense of place' and stand out against the historic industrial and/or natural landscapes associated with the area.

5.5.2 Decreased availability of medicinal plants for traditional doctors

With construction, vegetation surrounding each pylon will need to be cleared. As the power line traverses an extensive distance, with several hundred pylons, a substantial area of vegetation will be cleared in total. This temporary loss of vegetation may affect the availability of medicinal plant species collected by traditional doctors. This impact could be largely mitigated through transplanting important plant species.

5.6 FAMILY AND COMMUNITY IMPACTS

Impacts affecting families and communities are mostly likely to occur during the construction phase when there will be an influx of workers and increased activity in the area. The mere presence of construction workers or job seekers does not pose an impact but rather their behavior is what may impact family and community structures. Negative impacts will be higher during the construction phase and lower during the operation phase when activity will be reduced to maintenance. Such impacts are likely to include:

- Disturbance to daily life
- Impacts to family structure
- Distrust and wariness amongst farmers
- Improved quality of life for impoverished communities

5.6.1 Impacts to family structure

Construction workers who conduct themselves in a potential 'risky' manner pose a threat to family structure. Such behaviour could disrupt family structure through impacts including: increased drug or alcohol, increased prostitution, an increase in teenage pregnancies and construction workers 'stealing' wives and/or girlfriends.

5.6.2 Increased anxiety amongst farmers

Farmers are often wary of trespassers on their land. With a number of construction staff frequenting the area during the construction phase, anxiety amongst the farming families and communities may increase. This should subside following completion of the construction phase.

5.6.3 Improved quality of life for impoverished communities

Should the power line pass through communal land the compensation provided will benefit those living in marginal communities. Possibly means of compensation could include assisting households with access to electricity. This may also create unrealistic expectations and disappointment amongst those that do not benefit from the power line and may see them making demands of the Proponent in the future. New jobs created, either by the construction phase or the facilitation of new IPP developments, are likely to improve community stability, reduce crime levels and improve access to education. These effects would be greater the closer such developments take place to impoverished communities. However, incorrect placement of the power line could result in job losses should the viability of nearby businesses, such as guesthouses, be impacted.

5.7 INSTITUTIONAL, LEGAL, POLITICAL AND EQUITY IMPACTS

Institutional, legal, political and equity impacts associated with the power line include the following:

- Increased electrical grid infrastructure capacity

- The possible sterilisation of minerals

5.7.1 Increased infrastructure capacity for Independent Power Producers (IPPs)

The proposed location is within a gazetted corridor for such infrastructure, positioned to support areas where future transmission infrastructure will best be utilised. With an increasing number of IPP projects arsing, infrastructure capacity needs to be improved in so that the electricity produced can be incorporated into the National Electricity Grid. The proposed power line will provide the necessary infrastructure to support existing IPPs and will facilitate further IPP developments in the area. Local municipalities will receive a cash injection in the form of levies paid by IPPs. IPP developments will also have several positive economic knock-on effects as described. Facilitating IPP projects will assist in in achieving National energy goals, in terms of the percentage contribution by clean energy sources, and will overall support the National Electricity Grid.

5.7.2 Sterilisation of minerals

Springbok and surrounding areas have a long history of mining and there are many closed and active mines in the area. The proposed power line will traverse a considerably distance and may cross over ground containing important mineral deposits. This may lead to the 'sterilisation of minerals', which can be defined as the loss of the option to exploit the mineral deposit (Pendock, 1984). Through consultation with the DMR and identifying mineral right holders, the risk of sterilising mineral resources can be minimised. Following the route of the existing power line will have a lower risk of sterilising minerals as the power line has already undergone a public participation process.

The sterilisation of minerals has social and economic implications. This report has assessed the sterilisation of minerals, but as an issue chiefly of economic nature, it has been assessed in more detail in the Economic Impact Assessment report.

5.8 GENDER RELATIONS

Gender refers to the characteristics that society attributes to males and females. These characteristics vary greatly between different cultures and will tend to change over time. Culture thus plays and important role on gender relations along with other factors such as the gender of the household head.

The proposed power line is not expected to impact gender relations, thus no impacts with regards to gender have been assessed as part of this SIA. As far as possible the Proponent will endeavor to provide equal employment opportunities to women during construction and operation of the proposed power line.

SECTION 6: ASSESSMENT OF IMPACTS

This section presents the findings of the SIA for the relevant components and activities. The significance of impacts has been rated using an Impact Rating methodology. Please refer to Appendix D for the methodology. Activities associated with the proposed power line include the development of access roads, clearing land for pylons, installing pylons and cabling, compensation negotiations, maintenance once operational and the decommissioning activities.

The No-Go Option has been included in the assessment. Should the No-Go Option be opted for the proposed power line will not be constructed. The power line would then need to be constructed elsewhere or there would be a deficit in EGI.

Social impacts have been grouped according to the seven categories and assessed for the construction, operational and decommissioning phases. In order to be able to be able to map impact ratings for the whole study area, impacts where rated using spatial features instead of individual route options. The following spatial categories were used:

- Areas within 1 km of farmhouses, towns or residential areas
- Areas within 1 km of guesthouses or areas of social, cultural or tourism importance
- Open/Farmland

Mitigation measures are then recommended in order to reduce or eliminate negative impacts and to enhance positive impacts. Impacts are then re-rated with the implementation of mitigation measures.

The impact ratings have been summarised in this section. Please refer to Appendix E for the full impact rating tables.

6.1 SOCIAL IMPACTS ASSOCIATED WITH THE CONSTRUCTION PHASE

The majority of the impacts will be associated with the construction phase and will result from activities such as:

- Clearing land;
- Blasting/excavating;
- Movement of construction vehicles;
- Construction staff on site; and,
- Procurement of workers and equipment/materials.

The following impacts will be assessed for the construction phase:

- **Health and Social Wellbeing Related Impacts**
    - Increased dust and noise
    - Potential increase in crime

  - Health implications
  - Positive psychological effect
- **Quality of the living environment**
  - Disruption of daily living
  - Loss of sense of place
- **Economic and Material Wellbeing Impacts (Negative)**
  - Decreased tourism potential for the surrounding area
- **Economic and Material Wellbeing Impacts (Positive)**
  - Increased employment opportunities during the construction phase
  - Economic knock-on effects
- **Cultural Impacts**
  - Detracting from important cultural/heritage areas
  - Decreased availability of medicinal plants for traditional doctors
- **Family and Community Impacts**
  - Disturbance to daily life
  - Disruption of family structures
  - Increased anxiety amongst farmers due to possible crime and/or safety issues
  - Improved quality of life for impoverished communities (job creation)

Table 3: Summary of the impact ratings for the construction phase.

Impact	Location of Power Line						
	Areas within 1 km of farmhouses, towns or residential areas		Areas within 1 km of guesthouses or areas of social, cultural or tourism importance		Open/Farmland		"No-go" alternative
	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	
Increase in dust and noise	M	L	M	L	L	L	L (+)
Potential increase in crime	M	L	M	L	M	L	L (+)
Health implications	M	L	M	L	L	L	L (+)
Positive psychological effect	L (+)	L (+)	M	L	L (+)	L (+)	N/A
Disruption of daily living	M	L	M	L	L	L	L (+)
Loss of sense of place	M	L	M	M	L	L	M (+)
Decreased tourism potential for the surrounding area	L	L	M	M	L	L	M (+)
Increased employment opportunities during the construction phase	L (+)	M (+)	L (+)	M (+)	L (+)	L (+)	L
Economic knock-on effects	L (+)	M (+)	L (+)	M (+)	L (+)	L (+)	M
Detracting from important cultural/heritage areas	L	L	M	L	L	L	N/A
Decreased availability of medicinal plants for traditional doctors	L	L	L	L	L	L	N/A
Disruption of family structures	M	L	M	L	M	L	N/A
Increased anxiety amongst farmers	M	L	M	L	M	L	N/A
Improved quality of life for impoverished communities (job creation)	L (+)	M (+)	M	L	L (+)	M (+)	M

6.2 SOCIAL IMPACTS ASSOCIATED WITH THE OPERATIONAL PHASE

Once operational the activity around the power line will be reduced to maintenance and repairs as required. Compensation will be provided to the those whose land the power line traverses. The power line will provide the necessary infrastructure for the distribution of power created by existing and future IPP projects. The power line will also present a visual intrusion and will detract from the surrounding sense of place to a varying degree, depending on the nature of the surrounding area.

The following impacts will be assessed for the operational phase:

- **Health and Social Wellbeing Related Impacts**
  - Positive psychological effect
- **Quality of the living environment**
  - Loss of sense of place

- **Economic and Material Wellbeing Impacts (Negative)**
    - Decreased tourism potential for the surrounding area
- **Economic and Material Wellbeing Impacts (Positive)**
    - Benefits for landowners receiving compensation
    - Economic knock-on effects
- **Cultural Impacts**
    - Detracting from important cultural/heritage areas
- **Family and Community Impacts**
    - Improved quality of life for impoverished communities
- **Institutional, Legal, Political and Equity Impacts**
    - Increased infrastructure capacity for Independent Power Producers (IPP's)
    - Sterilisation of minerals

Table 4: Summary of the impact ratings for the operational phase.

Impact	Location of Power Line						
	Areas within 1 km of farmhouses, towns or residential areas		Areas within 1 km of guesthouses or areas of social, cultural or tourism importance		Open/Farmland		"No-go" alternative
	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	
Positive psychological effect	L (+)	L (+)	M	L	L (+)	M (+)	L (+)
Loss of sense of place	M	L	M	L	M	L	L (+)
Decreased tourism potential for the surrounding area	M	L	M	L	L	L	L (+)
Benefits for landowners receiving compensation	M (+)	M (+)	M (+)	M (+)	M (+)	M (+)	L
Economic knock-on effects	M	M (+)	M	M (+)	MH (+)	MH (+)	M
Detracting from important cultural/heritage areas	M	L	M	L	L	L	N/A
Improved quality of life for impoverished communities	L (+)	M (+)	L (+)	M (+)	L (+)	M (+)	L
Increased infrastructure capacity for Independent Power Producers (IPPs)	MH (+)	MH (+)	MH (+)	MH (+)	MH (+)	MH (+)	M
Sterilisation of minerals	M	L	M	L	M	L	L (+)

6.3 SOCIAL IMPACTS ASSOCIATED WITH THE DECOMMISSIONING PHASE

Impacts associated with the decommissioning phase will result from activities such as:

- The generation of noise;

- Movement of construction vehicles;
- Construction staff on site; and,
- Procurement of workers and equipment/materials.

The following impacts will be assessed for the decommissioning phase:

- **Health and Social Wellbeing Related Impacts**
    - Increased dust and noise
    - Potential increase in crime
    - Health implications
- **Quality of the living environment**
    - Disruption of daily living
    - Loss of sense of place
- **Economic and Material Wellbeing Impacts (Negative)**
    - Decreased tourism potential for the surrounding area
- **Economic and Material Wellbeing Impacts (Positive)**
    - Increased employment opportunities during the decommissioning phase
    - Economic knock-on effects
- **Cultural Impacts**
    - Detracting from important cultural/heritage areas
    - Decreased availability of medicinal plants for traditional doctors
- **Family and Community Impacts**
    - Disturbance to daily life
    - Disruption of family structures
    - Increased anxiety amongst farmers due to possible crime and/or safety issues
    - Improved quality of life for impoverished communities (job creation)

Table 5: Summary of the impact ratings for the decommissioning phase.

Impact	Location of Power Line						
	Areas within 1 km of farmhouses, towns or residential areas		Areas within 1 km of guesthouses or areas of social, cultural or tourism importance		Open/Farmland		"No-go" alternative
	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	
Increase in dust and noise	M	L	M	L	L	L	L (+)
Potential increase in crime	M	L	M	L	M	L	N/A
Health implications	M	L	M	L	L	L	N/A
Disruption of daily living	M	L	M	L	L	L	N/A
Loss of sense of place	M	L	M	M	L	L	N/A
Decreased tourism potential for the surrounding area	L	L	M	M	L	L	N/A
Increased employment opportunities during the decommissioning phase	L (+)	M (+)	L (+)	M (+)	L (+)	L (+)	L
Economic knock-on effects	L (+)	M (+)	L (+)	M (+)	L (+)	L (+)	N/A
Detracting from important cultural/heritage areas	L	L	M	L	L	L	N/A
Disruption of family structures	M	L	M	L	M	L	N/A
Increased anxiety amongst farmers	M	L	M	L	M	L	N/A
Improved quality of life for impoverished communities (job creation)	L (+)	M (+)	M	L (+)	L (+)	M (+)	N/A

SECTION 7:KEY FINDINGS AND RECOMMENDATIONS

7.1 INTRODUCTION

The key findings and recommendations of the study are listed here and are based on:

1. A review of relevant key policy and planning documents.
2. Findings from consultation with Organs of State and I&APs during the site visit.
3. The experience of the authors with other SIAs which are relevant to the proposed project.

7.2 SUMMARY OF FINDINGS

7.2.1 Policy and Planning Findings

The key documents reviewed can be found under Section 2 "Policy and Planning Environment".

A brief summary is provided below, to explain the main aims of the different Policy documents reviewed during the SIA study:

- The National Development Plan 2030 (NDP) (2011) contains a plan aimed at eliminating poverty and reducing inequality by 2030 making this one of the guiding objectives of the NDP over the next 20 years.
- The Department of Energy (DoE) is tasked with securing the supply of energy and pursuing a combination of energy sources that meets the needs of the country's fast-growing economy in a sustainable manner. The DOE's Strategic Plan (2015-2020) identifies seven "Strategic Outcomes-Orientated Goals." Goals 2 (Infrastructure) and 4 (Universal Access & Transformation) support the proposed development. The proposed development must ensure that it does not compromise Goal 5 of the strategic plan which aims to ensure the protection of environmental assets and natural resources.
- The Northern Cape's SDF, (2018) functions as a strategy to eliminate poverty and inequality while ensuring the protection of the environment through the application of sustainable principles. Four Spatial Development Strategies are identified which provide Strategic Focus Areas. Focus areas include investing in infrastructure in order to support further industry growth, protecting natural resources and reviving rural areas. Development must ensure that it does not compromise sustainable development and should be coordinated with local and provincial planning. The proposed development falls within an Eskom corridor and renewable energy development zone.
- The Northern Cape Provincial Government – Socio-Economic Review and Outlook, (2018) provides a provincial socio-economic profile which can be used to aid planning. The report looks at demography, the economy, labour and human development. Children aged 0-4 made up the largest portion of the province's population. The largest industries in the province where mining and community services. The biggest informal employer in 2016 was the trade industry.
- The Namakwa District Municipality: Integrated Development Plan 2017-2022 contains thirteen Strategic Objectives which aim to address, amongst others, service delivery, poverty, local economic development and the threat of climate change. The IDP includes several sectoral plans such as the Rural Development Plan, Climate Change Response Plan, Tourism Sector Plan, Air Quality Plan and the Housing Sector Plan. Unemployment is noted as one of the main reasons for poverty within the district. RE has recently become one of the cornerstones of NDM's economy of the District and there needs to be engagement on National level to ensure that the District profits from this resource. The proposed power line is not contrary to the aims and projects within the IDP and will aid in job creation and the diversification of the rural economy, especially in light of climate change which threatens the agricultural industry. Several tourism clusters occur within the district and the layout of the of

the power line will need to be such that it does not compromise the municipality's tourism industry.

- Nama Khoi Municipality Draft IDP 2018/2019 notes that the municipality was the largest contributor to the economy overall, contributing 44.1 per cent in 2004 and 35.8 per cent in 2014. The top three economic contributors to the NKLM in 2014 were Mining, Electricity and Transport. Tourism, a strong economic contributor, has not been fully exploited. The Goegap Provincial Nature Reserve may be expanded and tourist resorts and accommodation should be encouraged in this area. Zones have been identified within the municipality which have potential for wind and solar energy and generation which should be investigated.
- The Nama Khoi Local Municipality SDF (2014) provides direction to the desirable development mandate and spatial form of the municipal area. Poverty is widespread throughout the municipality. Elevating general education and skills levels is important to ensure meaningful employment. Mining has downscaled over the years within NKLM, resulting in job losses. The western coastal strip is ideal for renewable energy projects and there are planned and potential energy developments around Klienzee. A solar corridor is proposed from west of Springbok stretching eastwards along the N14. A wind energy corridor is proposed just inland of the coast. With regards to tourism, the Tourism Corridor from Pofadder to Port Nolloth via Steinkopf must be prioritised for tourism development.
- The Khâi- Ma Local Municipality IDP 2017/18- 2021/22 serves as a strategic framework that guides the municipality's planning and budgeting. Noted within the IDP is that mining is the highest contributing sector to the municipalities economy. The mining company, Vedanta Zinc International, currently takes responsibility for rendering basic services to the households and other consumers in the town of Aggeneys, near Aggeneis substation. At this stage KMLM does not have an energy plan and requires assistance in developing one as the municipality does not have the capacity. Noted within the key performance areas are the objectives to bring poverty relief through effective basic service delivery and job creation and to assist with economic interventions in sector development which includes the renewable energy sector.

Within the NDP job creation is noted as an important factor for future development, this is key to eradicating poverty which is also one of the aims of the Northern Cape's PSDF. The proposed power line will create jobs during the construction phase. Once operational, the power line will aid job creation indirectly by providing the necessary infrastructure to support the development of further IPP projects. The power line will increase the electricity supply to the area, supporting further industrial development.

Renewable energy developments play an important role in supporting the energy requirements of South Africa's fast-growing economy in a sustainable manner and are key for the DoE to achieve their

goal of an energy mix with 30% clean energy sources by 2025. The proposed power line is situated in a Renewable Energy Development Zone, as per the Northern Cape PSDF, and will be situated in close proximity to solar and wind corridors as per the NKLM IDP.

With a decline in the mining industry and the looming threat of Climate Change, diversifying the economy and capitalising on the Northern Cape's comparative advantages needs to be considered in order to strengthen the economy and reduce poverty. Tourism is noted as an important economic contributor in the Nama Khoi IDP and the proposed power line needs to be located in such a way so as to avoid impacting the tourism industry. The NKLM IDP also identifies important ecological corridors which the proposed power line will traverse. Both the DoE's Strategic Plan and the PSDF speak to the protection and sustainable use of natural resources.

Overall the reviewed planning documentation supports the development of the proposed a power line as it will provide the necessary infrastructure to support future IPP developments and is situated within a Renewable Energy Development Zone. Future IPP developments will benefit the area's economy through job creation and the increased supply of electricity. The development will support the DoE's vision to improve the energy mix to 30% clean energy sources by 2025.

As an important economic contributor to the economy, the viability of tourism needs to be protected by buffering key tourist attractions/routes from developments that may detract from their appeal. The power line needs to be located and constructed in such way so as not to compromise the ability to exploit existing and potential tourism opportunities.

Furthermore, natural resources and sensitive ecological areas need to be protected. While it will not be possible to completely avoid important ecological areas as depicted by the NKLM IDP, placement and construction of the power line needs to be done in such way that the integrity and functionality of these areas is not compromised.

7.2.2 Site Visit and Public Participation

During the one-week site visit none of the parties consulted were opposed the proposed power line. In general, the farmers consulted with were in favor of the power line as they welcomed the extra income that compensation could provide. From discussions at the meeting held with the Namakwaland Farmers Association, it was noted that the farmers were very wary of trespassers on their land. This was considered when assessing the potential for an increase in crime during the construction phase.

No comments were received from the guesthouses that were informed; however it was noted in discussion with the secretary at Naries Namakwa Retreat that they had recently constructed a viewing deck, the Gemsbok Lapa, which overlooks the Schaap Rivier valley.

Discussion with the representatives from NDM and NKLM revealed that there is a plan to place piping infrastructure for linking housing developments near OKiep. At the time they were unable to state exactly where the piping would be placed. As it is unlikely that the power line will pass nearby residential developments in Okiep, the piping is unlikely to be an issue. Access to the power line was noted as an issue that needed to be considered. It is difficult to access sections of the existing power line between Gromis and Nama substation which hampers repair and maintenance work on the line.

The Goegap Nature Reserve should be avoided as the power line would have negative impacts on large terrestrial birds should it pass through the reserve.

Land Claims

Land claims within the area were provided by the National Department of Rural Development and Land Reform. Route Alternatives 1 and 5 both traverse farm portions which have registered land claims. The farms with land claims were Bontekoe farm No. 197, Portion 0, Langhoogte farm No. 184, Portion 0 and Nababeep farm No. 134, Portion 17 as shown in **Figure 19**.

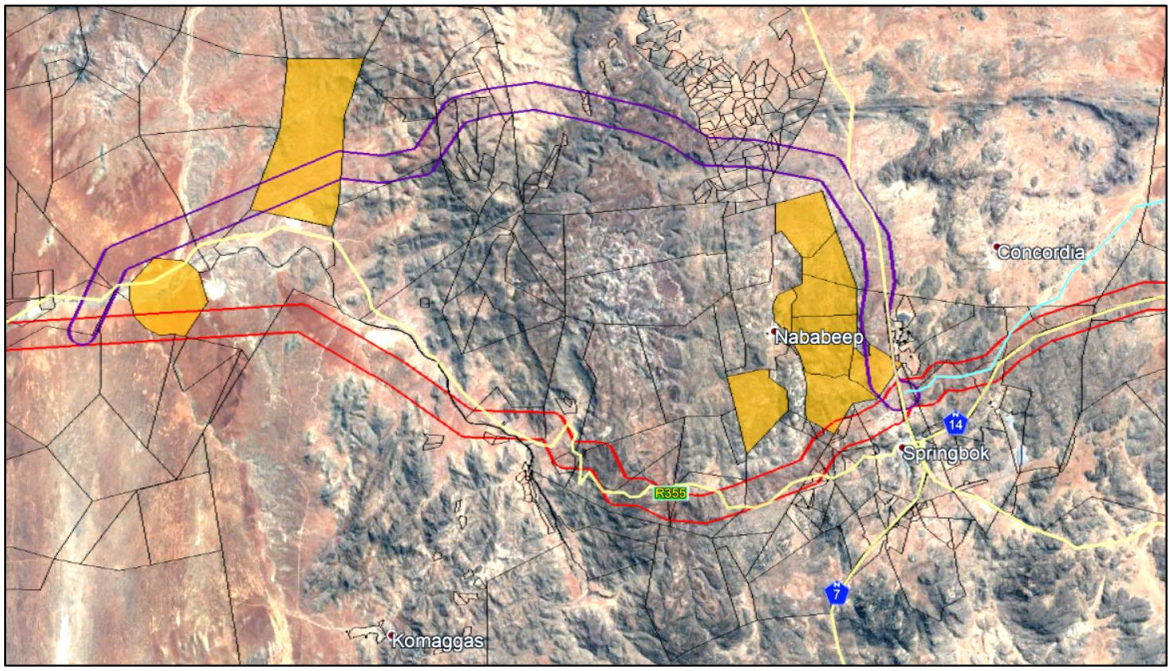


Figure 19: Properties with registered land claims depicted in 'orange.'

7.2.3 No-Go Areas

Based on the findings of a desktop evaluation, the site visit and the comments received, No-Go Areas were roughly mapped along the three route alternatives being investigated.

While no feedback, positive or negative, has been received from the guesthouses in the area, it was assumed that placing the power line near existing guesthouses and resorts would detract from their sense of place. A one-kilometer buffer was thus placed around all guesthouses, resorts and important

historic sites or monuments. A buffer was also placed over the viewshed of the Gemsbok Lapa and the Uitkyk point (Look Out point).

Farm homesteads, mines, towns and residential areas were assumed to be less sensitive to a change in sense of place. Farm homesteads were plotted with a one hundred-meter buffer. Mines, towns, residential areas and the Goegap Nature Reserve were outlined but not buffered.

The No-Go buffers placed around guesthouses, tourist attractions and farm steads are considered to have 'soft edges' and in cases the power line may be placed within the buffer, depending on the topography and consultation with affected parties.

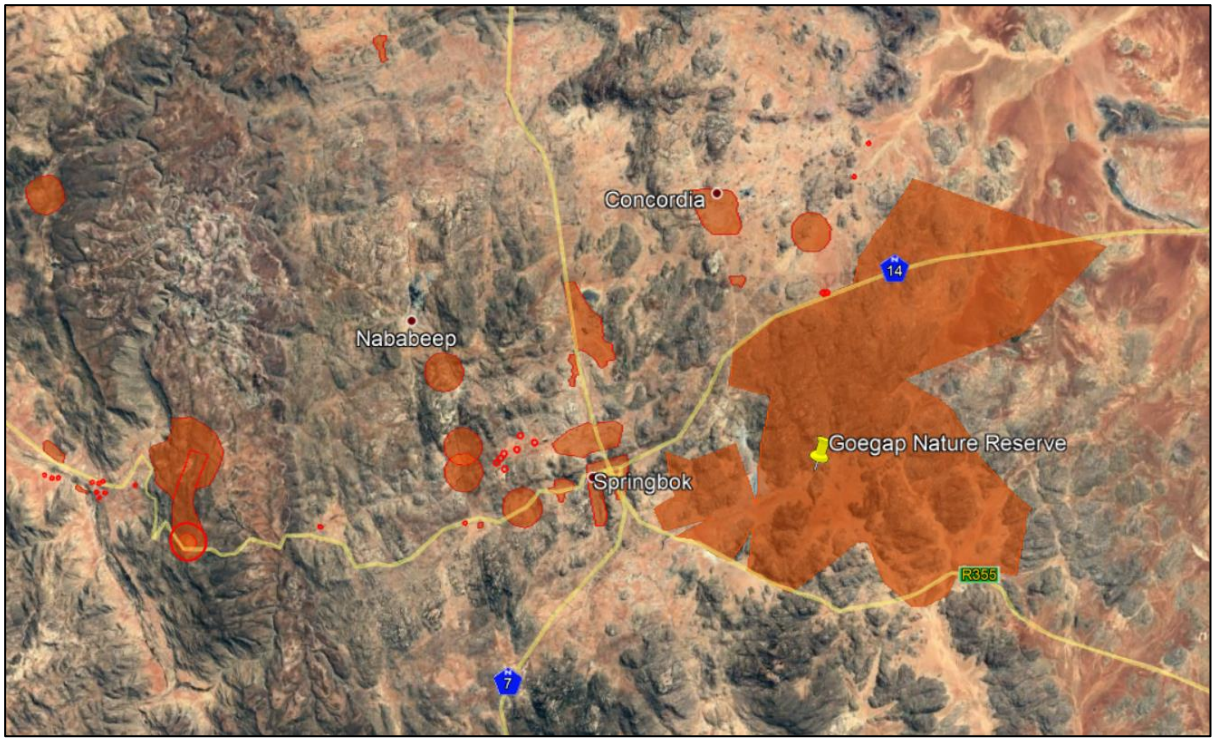


Figure 20: Example of the No-Go Areas in the vicinity of Springbok.

7.2.4 Construction and Decommissioning Phases

Potential Negative Impacts

During construction and decommissioning most of the negative impacts will associated with disturbances created by construction activities. Such disturbances will affect the daily life of nearby residents and could particularly affect business for guesthouses and resorts. Impacts will be higher the closer the power line is placed to farmsteads, guesthouses and residential areas. By strategically placing the power line and implementing mitigation measures these impacts can be reduced to acceptable levels.

Local farmers and family and social structures are at risk of being negatively impacted by large construction crews due to the isolated and marginal nature of the project area. This is based upon the potential for misconduct or 'risky' behaviour by construction staff rather than the mere presence of

construction workers. The magnitude of the impact will depend on the size of the workforce, the period they are on site and where they are housed during construction. As a linear development, construction will not be restricted to one area for extended periods and the workforce is likely to be relatively small. As such, these impacts are expected to be low with the application of mitigation measures (Barbour & van Zyl, 2016).

Construction or decommissioning activities may also result in an increase in crime. Farmsteads would be particularly at risk as these are often very remotely situated within the study area. Crime would likely be in the form of livestock and/or property theft. Housing of construction staff during must thus be carefully considered. The Proponent and contractor will need to include landowners in the planning of the construction phase and maintain communication with landowners throughout the process.

In general, negative impacts during the construction phase will be higher the closer the power line is placed to populated areas such as farmsteads and guesthouses/resorts. Implementing mitigation measures will be necessary to ensure that most of the impacts are reduced to a low significance.

Potential Positive Impacts

The construction and decommissioning phase will have positive economic effects through creating new, temporary job opportunities and through contractors making use of local businesses for accommodation, sustenance, equipment and construction materials. Likewise, construction staff will spend some of their income at local businesses and informal traders. The Proponent will also need to rent land from local landowners for setting up construction camps and/or laydown areas.

Potential positive impacts can be enhanced by the Proponent and contractor, who should, as far as possible, make use of local labour and businesses. Should there be a lack of skilled local labour, the Proponent could consider offering in-house training to fill semi-skilled positions.

7.2.5 Operational Phase

Potential Negative Impacts

Once operational the visual intrusion of the power line will pose the highest negative impact. Visual intrusion is expected to have a particularly high impact on businesses such as guesthouses/resorts and historic attractions. Power lines imparting an industrial feel which will detract from businesses relying on ‘sense of place’. Such impacts can be largely avoided by placing the power line a suitable distance from tourism related businesses. Where feasible and necessary, the route should be altered to strategically place the power line behind topographical features like hills. Where ‘hiding’ the power line is not possible, it will have to be routed to allow sufficient distance between it and tourist attractions.

Potential sterilisation of minerals needs to be considered. This can largely be avoided by ensuring the line is not placed over known mineral deposits and/or on land with existing mineral claims. Where this

is unavoidable, the Proponent will need to liase with mineral right holders in establishing a route. This has been discussed in greater detail in the Economic Impact Assessment report.

While taking the abovementioned into account, the route will need to consider access for conducting maintenance. The selected route of the power line should ensure that the line can be accessed with relative ease by maintenance personnel. This will reduce interruptions in service delivery.

Potential Positive Impacts

Once constructed the new power line will have several positive impacts at a local, provincial and national scale. The extra transmission capacity will facilitate future IPP projects and support the Namakwaland and National electricity networks.

Economic development and climate change: Besides income generated from electricity sales, IPP developments will have positive economic knock-on effects as well, such as facilitating job creation and economic development at a local scale.

With climate change threatening the viability of the NCP's agricultural industry and a gradual decline in the mining industry, diversifying the local economy will be a key approach to mitigating economic decline. Future IPP developments will enable local municipalities to further capitalise on the province's comparative advantages for wind and solar projects. This would support the shift from non-renewable resources and help meet national targets for clean energy sources

Monetary impact: Where the power line traverses private land, the landowners will benefit directly from the monetary compensation. The Proponent could consider others forms of compensation in order to compensate communities residing on communal land.

Important note: Proper placement of the power line is key to minimising potential negative impacts to local communities and ensuring that positive impacts out-weigh the negative in the long term.

7.2.6 Assessment of No-Go Alternative

Should the option of not constructing the proposed power line be opted for, the negative impacts associated with the construction phase, such as a disturbance to daily life and a potential increase in crime will not be realised. The area's sense of place would not be affected by construction activities and the long-term visual intrusion of the power line. The tourism industry will neither be negatively or positively affected. Positive impacts such as job creation, economic development and a more stable electricity supply will not be realised.

While the option of not constructing the power line will avoid several negative impacts it will result in a high opportunity cost. Without the necessary grid infrastructure to distribute electricity, the development of future IPP projects will be greatly restricted. Economic benefits associated with the

development of IPP projects would be forfeited. Landowners would not receive the extra income in the form of compensation, an income source which would particularly benefit farmers struggling due to the drought.

With a gradually declining mining industry and climate change threatening the viability of agriculture in the Northern Cape, alternative economic contributors will become increasingly important. Not exploiting the comparative advantages held by the Northern Cape, in terms of wind and solar, will result in high opportunity costs at both a local and national scale. Furthermore, the opportunity for combating climate change by capitalising on renewable energy sources would not be realised.

7.3 CONCLUSION AND RECOMMENDATIONS

Alternative 1

From a practical perspective Alternative 1 is the more feasible option, providing the shortest distance between substations and roughly follow the existing power line with its existing access roads. However, the western section of Alternative 1 passes by numerous sensitive receptors, including several guest resorts and farmhouses. Construction and decommissioning phase impacts are expected to be higher along this stretch, see Table 3. Following the existing power line also creates the risk of cumulating visual impacts. Due to the number of sensitive receptors along the section, the western section of Alternative 1 is not recommend.

The eastern section of Alternative 1, spanning Nama and Aggeneis substations, passes through the Goegap Nature Reserve and other conservation areas. As a provincial nature reserve, Goegap is valuable for conservation and tourism. This section of Alternative 1 is not recommend as negative visual impacts, affecting 'sense of place' would be significantly high. The section of Alternative 1, further east of the protected areas, is feasible. This section passes through sparsely populated areas of low importance for tourism. If the other specialist studies propose the eastern section of Alternative 1 as a feasible option the power line would need to follow the N14 closely, remaining on the extreme edges of Goegap Nature Reserve. Feasible and No-Go sections along Alternative 1 are depicted in Figure 21.

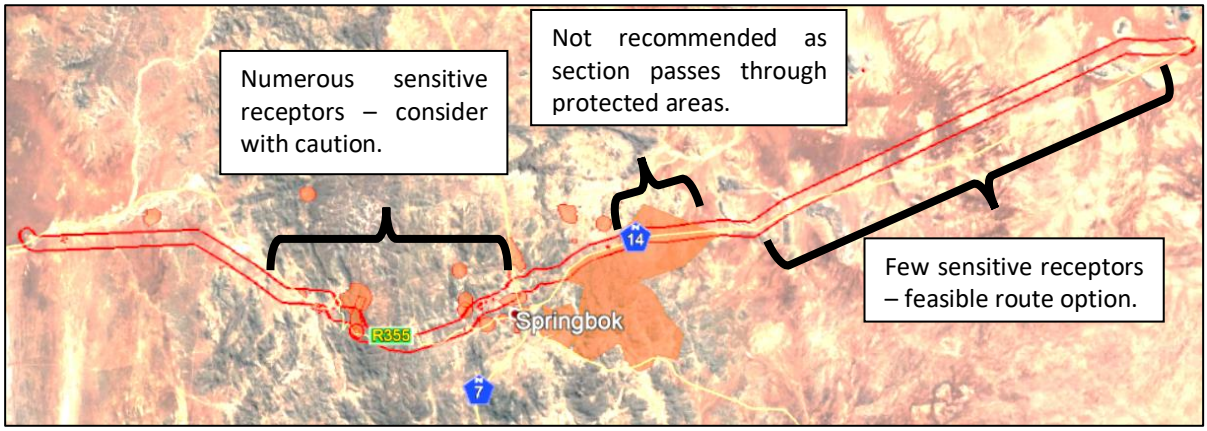


Figure 21: Feasible and No-Go sections along Alternative 1. Sensitive areas are depicted in 'orange'.

Alternative 4

Due to the remoteness of route Alternative 4, the potential for negative social impacts during construction will be significantly lower than the western section of Alternative 1. Alternative 4 avoids Spektakel Pass and the numerous guesthouses and farmsteads along it.

Alternative 4 does presents significant practical challenges as the mountainous topography would complicate the construction process and make the power line difficult to access once operational. The NKLM noted that the existing power line is already challenging to access, affecting the turnaround time of repairs. Cost is another factor, as Alternative 4 spans a longer distance, approximately fifteen kilometres (15km) more than Alternative 1. This carries significant financial implications as each kilometre of power line costs the Proponent several million Rand, money which could be better spent on social upliftment projects.

Alternative 5

The section between Nama substation and Aggeneis substation that Alternative 5 traverses, consists predominantly of farmland and is generally of low tourism importance. Alternative 5 presents a feasible option as it avoids the Goegap Nature Reserve. A section of Alternative 5, depicted in Figure 22, passes by the Appolis Guest House and several farmsteads. This section of the power line would need to be routed around these areas to avoid them. As Alternative 5 moves east it runs parallel with the existing line through an area of low sensitivity.

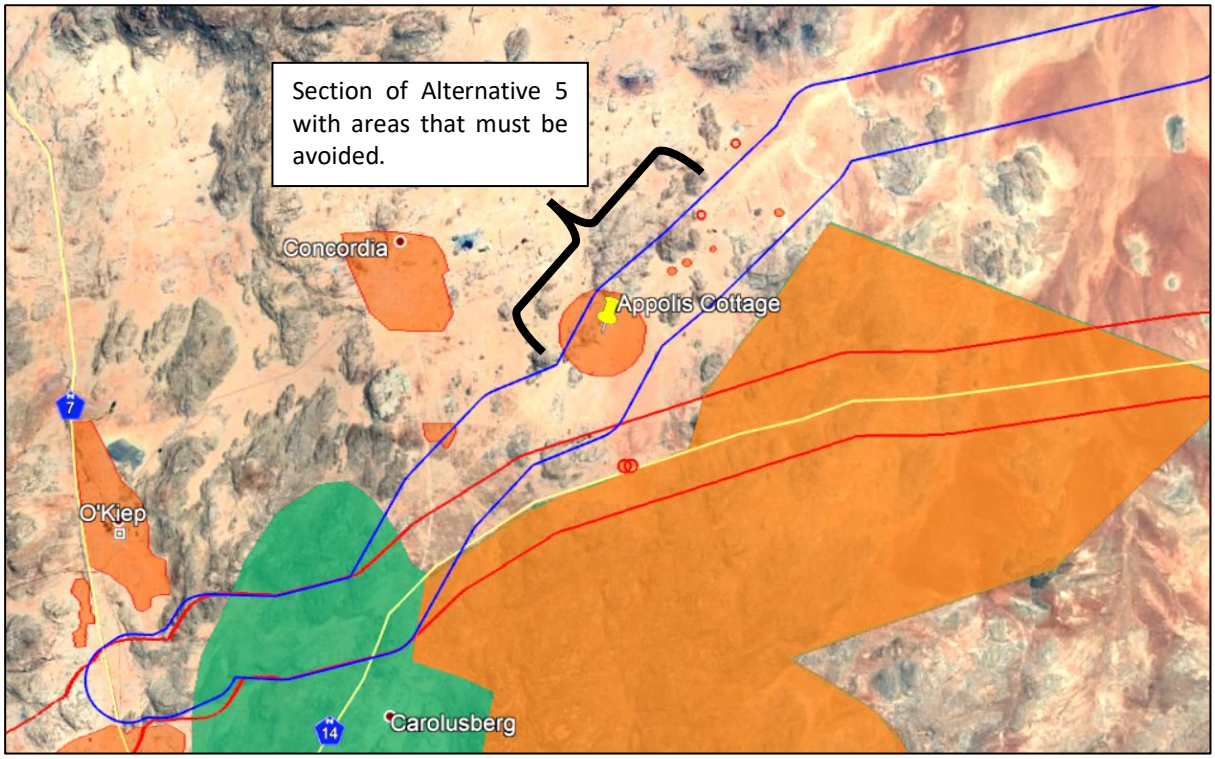


Figure 22: Areas to be avoided along Alternative 5 due to several farmsteads in the area. Sensitive areas are depicted in 'orange'.

Conclusion

Developing a 400 kV power line from the Gromis via the Nama to Aggeneis substations and expanding the Nama substation will result in several positive spin-offs through facilitating the development of IPP projects in the area and supporting the national electricity grid and energy development goals. Furthermore, national and municipal planning documents are in support of the proposed development so long as the power line does not adversely impact the local tourism industry.

While the power line will facilitate several positive economic impacts, it would pass through a scenic landscape with a rich cultural heritage, an important tourism industry and a large marginal population. These factors make the area particularly susceptibility to potential negative impacts, especially any impacts that will affect the 'sense of place'.

Assessing these potential impacts found that negative impacts were typically expected to be higher near farmsteads/residential areas and important tourism or historic attractions (see Table 3). Positive impacts are expected to be less dependent on distance from social features.

Visual intrusion will be one of the main negative impacts as it will impact the 'sense of place' throughout the operational life of the power line. This is expected to increase the closer the power line is situated to residential areas, farmsteads and tourism related facilities. Poor location of the power line would threaten the viability of existing tourism related features such as guest resorts and

nature reserves. Such impacts can be mitigated by avoiding 'No-Go' areas to ensure the power line is not placed near sensitive receptors.

Given that construction related impacts will be temporary and can be mitigated or avoided, selecting the route with the lowest operational phase impacts is preferable.

Although declining, mining activities remain a key economic contributor to Namakwaland and the possible sterilisation of minerals needs to be prevented. While the public participation process of the Screening assessment endeavoured to consult all relevant mining companies, the consultation was limited relative to the number of mining rights held within the area. A more in-depth consultation process should be pursued upon assessing the finalised route, during the Basic Assessment phase. As mentioned, the sterilisation of minerals has been addressed in more detail in the Economic Impact Assessment.

Cumulative Impacts

The construction of an additional power line near the existing line would likely cumulate existing visual impacts. It is typically desirable to cluster industrial infrastructure, keeping other areas free from industrial clutter. Given the area's current 'sense of place', following the route of the existing power line could significantly cumulate visual impacts. Cumulative impacts would be particularly high were the power line to pass through the Goegap Nature Reserve and other protected areas. Should the new power line follow sections of the existing line, it should be plotted in a way that avoids cumulating visual impacts.

Recommendations and Mitigation Measures

Based on the findings of this SIA, it is recommended that the more populated areas and areas with a high tourism value be avoided. Avoiding these areas will reduce the impacts of visual intrusion, crime and disturbance to daily life. The western section of Alternative 1 and the section passing through the protected areas should thus be avoided.

The eastern section of Alternative 1 and Alternative 5 are likely to have similar impacts, both impacting tourist attractions. However, if the No-Go areas within the corridor are avoided, Alternative 5 is expected to have significantly lower impacts than Alternative 1. Based on the outcome of other specialist studies, should Alternative 1 be selected as the preferred route, some of the money saved by taking the shorter route could be invested into local social upliftment initiatives. This would serve to offset the higher negative social impacts incurred by taking Alternative 1.

It is recommended that the proposed power line follow the following route:

- **Gromis to Nama**: The power line should be constructed along Alternative 4.

- **Nama to Aggeneis**: The power line should be constructed along Alternative 5. The final power line route must avoid the No-Go areas, such as the guesthouses and farmsteads.

Figure 23: Recommended route alternative to be followed for the power line.

Mitigation Measures

The Proponent must adhere to all the mitigation measures stipulated in the Generic Environmental Management Programme (EMPr) for the Development and Expansion of Substation Infrastructure for the Transmission and Distribution of Electricity, gazetted on 22 March 2019. In addition to this the follow mitigation measures are recommended:

Construction and Decommissioning

- Notify residents prior to conducting activities that may cause excessive noise.
- Use attenuation for machinery where possible.
- Contractors to strictly monitor for any non-employees on site and to report any immediately.
- All employees are required to have a form of identification.
- No farm gates to be left open.
- Farmers to report cases of livestock theft to the Contractor to investigate internally.
- Contractors to work closely with farm watch groups.
- Monitor dust levels and ensure dust mitigation measures are in place.
- All employees to be supplied with appropriate PPE.
- HIV/AIDS Awareness talks to be incorporated into induction talks.
- No non-employees to be allowed on the construction site/construction camp.

- Minimise disturbance to landowners/inhabitants through proper planning and notify them in good time of when access will be needed.
- Ensure noise is kept to a minimum.
- Do not block access roads.
- Do not remove fences prior to consent of landowner.
- Keep noise and dust generating activities to a minimum and time such activities between 08:00 – 17:00 during weekdays.
- Keep construction sites/camps neat and tidy, screen with inconspicuous netting, paint reflective materials a matt colour and minimise lighting at night.
- Employees to conduct themselves in an appropriate manner.
- Screen construction site/camp and keep neat.
- Clear as little vegetation as possible.
- Strictly adhere to working hours 08:00-17:00.
- Avoid construction over weekends, holidays and the flower season (September / October).
- As far as possible, hire staff from the surrounding areas, make use of local service providers and make use of local service providers for accommodation, sustenance, equipment hire, construction materials etc.
- Avoid construction over weekends,
- Maintain contact with farmers in the surrounding area and keep them updated regarding planned construction activities.

Operational

- Avoid placing the power line within or near No-Go areas. Do not locate the power line near farmsteads and residential areas, within 500m, and guesthouses and tourist attractions, within 1 km. Based on consultation with individual landowners, distances could be reduced.
- Route of power line should place the line in such as position that potential for visual intrusion is minimised.
- Shiny sections on structures should be painted a mat non-reflective colour.
- Where the power line passes through communal ground make meaningful compensation that will aid in the long-term upliftment of communities, e.g. through the provision of infrastructure or facilities.
- Route of power line should place the line in such as position that potential for visual intrusion is minimised.
- Consult with the relevant authorities with regards to mineral deposits and mining rights and ensure the line does not cross areas of known mineral deposits and/or where existing mining rights exist.

7.4 IMPACT STATEMENT

The findings of this SIA indicate that if mitigation measures are implemented, negative impacts can be lowered to acceptable levels. Thus, implementation of mitigation measures will ensure that the proposed development of a 400 kV power line from Gromis substation via Nama substation to Aggeneis substation will have social benefits that outweigh the negative impacts. It is recommended that between Gromis substation and Nama substation the power line should be constructed along Alternative 4. From Nama to Aggeneis substation the power line should follow Alternative 5.

Please take note that if mitigation measures are not adhered to then the proposed power line could have high negative impacts on the area's tourism industry, farmers and local communities.

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APPENDIX A: INTERVIEWS AND LITERATURE USED

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- Jacques Cloete and Quentis Titus - Nama Khoi Local Municipality, 14/10/2019;
- Naries Namakwa Retreat, 16/10/2019;
- Thapelo Sekia - Namakwa District Municipality Department of Transport, Safety and Liaison, 17/10/2019;
- Christiaan Fortuin, Joseph Cloete and Quentis Titus - Namakwa District and Nama Khoi Local Municipality, 18/10/2019;
- Chrizelle Farmer and Thsifhiwa Mukwevho - Department of Mineral Resources, 18/10/2019.

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APPENDIX B: PUBLIC PARTICIPATION PROCESS REPORT

APPENDIX C: DETAILS OF THE SPECIALISTS

Suite 204, Hibernian Towers, Beach Road, Strand, 7140 or
Postal: Suite 338, Private Bag X15, Somerset West, 7129, RSA
Mobile +27 (0)82 562 4134 Landline +27 (0)21 853 0682 Fax 086 601 7507
E-mail: elbi@enviroworks.co.za Website: www.enviroworks.co.za

CURRICULUM VITAE
GERBRECHT ELIZABETH (ELBI) BREDENKAMP

Founder and CEO of Enviroworks Environmental Management Company since 2002 (www.enviroworks.co.za); Founder and CEO of EnviroCare (Non- Profit Organisation); Certified Carbon Verifier and Member of Carbon Protocol of South Africa, Certified ISO 14064 GHG Verifier; Certified Professional Scientist (Pr.Sci.Nat. 400328/11) (SACNASP); Member of the International Association for Impact Assessors (IAIAsa) (Membership 3893); Alien Invasive Species Consultant (SAGIC Training AIS 1018)

PLACE OF BIRTH: Bloemfontein, South Africa
DATE OF BIRTH: 13 February 1964, Age 53
SOUTH AFRICAN ID NO: 640213 0036 082

QUALIFICATIONS

2012-2013: Greenhouse Gas Verification Training of the JCM (Joint Credit Mechanism LRQA Japan Proposed by the Japanese Government)
ISO 14054, ISO 14064, JCM (BOCM) Manuals,
LRQA GHG Verification Procedures.

2012 Systems & Greenhouse Gases ((GHG) Technical Assessor Course, SANAS (South African National Accreditation System- ISO 14065) (With distinction)

2010 ISO 14064-1/2/3/4 - Carbon Action (UK)

- Measuring your Organisation's Carbon Footprint: ISO 14064-1: Essentials – GHG Inventories (50018728/50052908)
- Reducing your Organizational Environmental Impact: ISO 14064-2 :Essentials – GHG Projects (50018741-50052911)
- Carbon Emission Reduction Expert Course :ISO 14064-2 Expert – GHG Projects (50018731/50052909)
- Greenhouse Gas Verification: Using ISO 14064 (50029594-50052913)
  Courses successfully completed in England & Ireland on Carbon Footprint measuring and verification

2000 – 2002	Principles of EIA Review Course	US EPA, in Pretoria, RSA
	Conflict Management	Durban, RSA
	Environmental Law (with distinction)	Aldo Leipoldt Institute, Pretoria, RSA

1997 – 1999	Mineral Laws Administration and Environmental Management	University of Pretoria, RSA
	Principles of the Rehabilitation of Disturbed Areas	University of the North-West, RSA
	Environmental Impact Assessment	University of the North-West, RSA
	Environmental Management Systems (SABS/ISO 14001)	University of the North-West, RSA
	Environmental Policy and Management in Mining and Minerals	University of Johannesburg, RSA
	The Measurement of Biodiversity	University of the Free State, RSA

1992 - 1994 M.Sc (Botany) – University of the Free State (Cum Laude), Republic of South Africa

1982- 1986 B.Sc & B.Sc (Hons) - University of the Free State- majoring Botany, Zoology, Mathematics

WORK EXPERIENCE

2002 – Today **Founder; CEO and International Greenhouse Gas Verifier at Enviroworks Consultancy, RSA**

- Extensive experience in the conducting of Environmental Impact Assessments, Risk Analysis, Auditing, Monitoring and Compiling of Environmental Management Plans. A familiarity with Government departmental mechanisms and functioning, aided towards the success of these projects.

- An ongoing involvement with the International Association of Impact Assessment (IAIAsa), led to key involvement in the holding of workshops between the Department of Environmental Affairs and Tourism, Developers and Consultants, to discuss logistics, capacity constraints, and communication channels to enhance the assessment process. Contribution was largely from a consultant standpoint.

- Under the direction of Elbi, Enviroworks expanded to provide numerous services in the fields of soil-, water-, vegetation- and waste management.

- **Notable Public Sector Projects** included the assessment for the construction of a Weir structure at Oranjedraai; Rehabilitation work for Nuwejaarspruit; the assessment for a Vulture Hide at Golden Gate National Park and development of eco-tourism facilities at the Golden Gate National Park Mountain Retreat; assessment as to the expansion of tourism facilities at Basotho Cultural Village; the review of 371 Section 24G applications, all on behalf of the Government Department of Environmental Affairs. The aforementioned projects were all in the RSA.

- **Notable Private Sector** Projects comprise the completion of Environmental Impact Assessments (EIA's) and Water Use Licence (WUL) applications for the Neotel Long-Haul Fibre Optic network between Johannesburg and Cape Town, connecting the SEACOM Cable to the South African continent; more than 300 EIA's of communication infrastructure for MTN, Cell C and Vodacom in the Free State- and Western Cape Provinces; various EIA's for the construction of Eskom Powerlines and Substations Nationally; Management and Business plans for the management and breeding of large predators in captivity, in the Free State Province; EIA's for the construction of river gauging weirs Nationally; EIA's for the construction of Residential developments Nationally; as well as Mining Environmental Management Plans, Archaeological Assessments, Eco-Tourism EIA's, Risk Assessments, Agricultural Upgrading and development, Waste handling and National Environmental Management Act 24G Applications. Notable Public Consultation took place during each project. Social Impact Assessments were done for the various projects.

- **Expansion into the Green House Gas Management Sector** (Carbon Footprint)
  In 2010, Elbi travelled to London and Cork to obtain training and certification with the ISO 14064 (1-4) standards on Greenhouse Gas Management. As a consultancy partner, to the Carbon Disclosure Project (CDP), member and Certified Verifier of the Carbon Protocol of South Africa (CPSA), Elbi developed an impressive spectrum of services, ranging from carbon disclosure and verification to carbon footprinting, the provision of awareness workshops and emission

reduction projects. She established a network of International Industry Specialists (notably Chemical and Industrial Engineers; as well, as Carbon and Energy Experts) to ensure that service excellence and global standards are maintained. Furthermore, she was requested by the Japanese Government to do external Carbon Audit Verification for a Carbon Reduction Project at Goldfield Driefontein Main Fan Efficiency Project at Carletonville, in South Africa.

- **Alien Invasive Identification (AIS), development of AIS Management Control Plans as well as Physical Control/Eradication Team Management**
  As a botanist, Elbi was always interested in Alien Invasive Species (AIS) and their negative effect on the indigenous vegetation. Relative recent Biodiversity Legislation (NEMBA) on the Reporting and Management of AIS in South Africa, formed the basis of her experience in this field. She attended training courses presented by the South African Green Industry Council (SAGIC) and gained experience via projects, specifically based on the NEMBA legislation.
  Projects in the Western Cape included LafargeHolcim Western Cape (Peak-, Saldanha- and Tygerberg sites); and in the Southern Cape (Knysna- and George sites).
  She presented various knowledge transfer talks to Estate Agents and did a presentation at a conference, held by Schnetler's Conveyance Attorneys, to inform the attorneys and the estate agents of the necessity and the requirements of AIS Management. She was also pivotal in AIS development and management in Bloemfontein, Free State, for the LafargeHolcim Cement Industry; and presented various talks at the National Estate Agents' Annual Conferences to this effect.
  She also managed teams that did Physical Eradication Projects for the LafargeHolcim Company. Various Estate Agents are now on Enviroworks' list to assist them with AIS Declaration Certificates. As part of ECOCERT Open Spaces Certification, she also managed and assisted Riverside Estate Guesthouse (a first for South Africa in the Tourism Industry Open Spaces Certification) to compile their Biodiversity Report and Alien Invasive Management Report. She give input throughout the lifespan of this project to date. She presented and was requested to draft Terms of Reference, to the South African National Roads Agency (SANRAL), a Plan of Action to assist them in their effort to report and manage their AIS responsibility. She has been in the environmental field for 21 years, involved with Environmental Impact Assessments, where Alien Invasive Identification and Control formed an integral part of each study.
  Thus, her abilities in this field *inter alia* include:
    - Ground truthing and Assessing of Invasive Species on site;
    - Listing and Reporting on the Invasive Species;
    - Develop Management- and Control Plans;
    - Execution of Control Plans.

- **International Environmental Experience**
  - International Audit / Carbon Verification for the Japan, Ministry of Environment on Carletonville Mine Energy Efficiency project – South Africa: JCM Pilot Verification Audit for LRQA (Lloyd's Register Quality Assurance Limited, Yokohama, Japan, November 2012- February 2013 (as mentioned above).
  - International Environmental Audit (5 year period) for General Motors South Africa (GMSA) in conjunction with SHE Management Company.
  - The World Bank granted funds for infrastructure upgrade the Gaza Province, Mozambique, Africa. Zhongmei Ltd, a Chinese owned company, was awarded the project for the Design, Rehabilitation/Improvement, and Routine Maintenance Works of ICB No: 22/Ge-Ane/313/2015. Elbi's current responsibilities in this project, entails:
    - Ensuring compliance with both Mozambique Environmental Legislation
    - As well as following and executing World Bank Procedures in terms of Environmental Policy and Standards
    - Developing the Environmental and Social Management Framework.
    - Developing Social and Environmental Policies and Plans
    - Writing the Capacity Building and Training Material Manuals
    - Community liaison and Health, Safety and Social Impact Assessment Studies for the affected communities/population.

1997 – 2002 **Department of Tourism, Environment and Economic Affairs, Free State (DTEEA-FS), South Africa: Environmental Specialist**

- Worked as an Environmental Specialist in the Environmental Impact Assessment Division.
- Developed Departmental Administrative Processes & Organizational Structures
- Interprovincial Department Liaison with all other South African Provinces
- Streamlining of Report Review Processes
- Through ongoing dealings with Environmental Legislation, an intimate familiarization with the National Environment Management Act (Act 107 of 1998 "NEMA") and NEMA EIA Regulations Government Notices 385, 386, 387 promulgated in terms of chapter 5 of NEMA, 1998 was achieved. Elbi formed part of the Task Team to re-write the NEMA Regulations at National Level.

1996 **Department of Minerals and Energy, Free State, RSA: Principal Environmental Officer**

- Served as a listed Environmental Specialist with the Department of Minerals and Energy gaining an extensive knowledge of mining impacts and attributing management mechanisms.
- Expertise were developed in rehabilitation, monitoring, reviewing and approval of Environmental Management Programme Reports (EMPR's), field inspections, evaluating Closure Plans for mines, as well as slime dams' inspections and associated impact evaluation.
- Legal implications in the event of non-compliance.
- Project involvement was achieved through Public Participation Processes, Consultation Phases, Planning Phases to incorporate Environmental Aspects, and the evaluation of the Environmental Impact Assessments, resulting in the compilation of Conditions of Approval by evaluating the Environmental Management Plans.

PROFESSIONAL ASSOCIATIONS

Elbi is associated with the following organizations:

- Registered Scientist with the South African Council for National Scientific Professions (SACNASP) (Pr.Sci.Nat. 400328/11)
- International Association of Impact Assessors (IAIAsa) (Member No 3893)
- International accredited Carbon Verifier (auditor)
- SANAS accredited System & Green House Gas Technical Assessor
- Member and Certified Carbon Verifier with the Carbon Protocol of South Africa
- Accredited Consultancy Partner with the Carbon Disclosure Project- 2012
- Preferred supplier with the Financial Mail Green Business Guide-2012
- International Association for Impact Assessment South Africa (IAIAsa) – Branch Chair from 2011 - 2013

SPECIAL AWARDS

- Prof. E M van Zinderen Bakker - Prize (Best M.Sc. - Dissertation) & Honours in academics
- Dean's Medal (Best Magister Student)
- S2A3 - GENCOR - Bronze Medal (Best M.Sc. Thesis in Dept. Botany and Genetics)
- Africa Growth Awards Overall Winner Services Sector- 2012
- SEDA Business Competition Overall Provincial Winner- 2012

STRONG POINTS

- Natural Entrepreneurial Skills since early childhood (e.g. founding Enviroworks and EnviroCare Companies)
- Well-developed Strategic Management skills

- Research/ Analytical Skills developed during my study years as Environmental Scientist specializing in Botany (Master of Science)
- Integral Social Responsibility Skills were developed during my career as Environmentalist and this resulted in my founding and establishing of EnviroCare, a Non- Profit Organisation arm of Enviroworks
- Excellent understanding and knowledge of the Broad Environment
- Passionate about the Environment in its full context; to the effect that the Company I founded (Enviroworks)'s credo is: "Today's Impact is Tomorrow's legacy"
- Good understanding of Development Issues in both developing and developed countries, justifying the existence of Enviroworks (my company)
- Strong Visionary Leadership developed during my career in the Private Sector, founding Enviroworks and taking it forward to a National Operating Company.
- Excellent Supervisory Skills, managing a multi-disciplinary Professional/ Specialist Team
- Well- developed natural Delegation Skills as needed in a National Company with six (6) branches countrywide
- Excellent Mentorship Skills were developed during my 15 year period in building Enviroworks and acting as incubator for Internships. Enviroworks is requested by various Institutions to assist with Mentorship of Internships. Recently, we were selected by the Youth Environmental Services (YES) Programme, an environmentally-focused youth development and training programme funded by the Department of Environmental Affairs (DEA) to host 2 Interns yearly.
- Project Managerial Skills are well- developed in dealing with 15 years of projects, as CEO of Enviroworks
- Good Organizational Skills were developed during my 2 year period as IAIAsa Chair Person, organising and presenting the National and Regional Annual Conferences
- Dedicated Team Worker, Inspiring co-workers through leading by example
- Very good knowledge of Government Structures and understanding of Institutional Mandates developed whilst working in the South African Government sector for 8 years
- Excellent Communication Skills on different levels and ability to transfer knowledge as developed during my career as Mathematics and Science Teacher at Senior School level and lecturer at the University of the Free State, RSA. Latter was enhanced during my Environmental Career, communicating from the highest level in Government to grass-root level in the community *at large*
- Financial Resource Mobilization skills are day to day skills executed in running a profitable Business and overseeing Project Execution
- Language proficiency is excellent, both oral and written, in English, Afrikaans (mother tongue) and Southern Sotho (native language)

REFERENCES

Name	Antionet van Wyk
Position	SANParks General Manager: Infrastructure and Special Projects
Tel	Ph (+27) 12 – 426 5126 Fax (+27)12 – 343 4666 Cell: (+27)82 905 4644 Website: www.sanparks.org
Email	antionet.vanwyk@sanparks.org
Name	Mr Patrick Anderson
Position	CEO Pr.PM (Reg. No. 7469) NQF9 PM (Masters) NQF5 Civil Eng. Panda Consulting (PTY) Ltd
Tel	Ph: (+27) (0)43 748 1557

Fax: (+27) (0)43 748 1557
Cell: (+27) (0) 82 3460 980

Email patrick@pandaconsulting.sa.com

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Suite 1064, Private Bag X2, Century City, 7446
Block B2, Edison Square, c/o Century Avenue and Edison Way, Century City
Cell I 082 438 9744 I Tel 021 527 7084 I Fax 086 601 7507
michael@enviroworks.co.za I www.enviroworks.co.za

Michael Leach

RELEVANT QUALIFICATIONS

- Bachelor of Science in Conservation Ecology: University of Stellenbosch (2015)
- IAP2 Public Participation Training (31/10/2018)

WORK EXPERIENCE

April 2017 – November 2017:	Freelance Environmental Control Officer for Peninsula Permits
June 2017 – August 2017:	Field Assistant – Post Graduate Students
November 2017 – February 2018:	Field Assistant (Vegetation Mapping)
May 2018 – Present:	Environmental Consultant at Enviroworks

BASIC ASSESSMENT EXPERIENCE

- Proposed Development of a Telecommunication Base Station and Associated Infrastructure on Portion 8 of The Farm Delta No. 1003, Groot Drakenstein, Western Cape Province (Coast to Coast).
- Proposed Development of New Sports Fields For Curro Holdings, on Portion 110 of The Farm Olifantsvlei No. 327, Johannesburg South, Gauteng Province (Curro Holdings).
- The Proposed Development of a Thirty Five Metre (35M) Telecommunication Base Station and Associated Infrastructure on Remaining Extent of Portion 13 of The Farm Van Aries Kraal No. 455, Grabouw, Western Cape Province (Coast to Coast).
- The Proposed Construction of a Curro School on Portion 54 of The Farm Blue Hills No. 397, Midrand, Gauteng Province (Curro Holdings) – Current
- The Proposed Expansion of The Diesel Storage Capacity For Backup Power, on Erf 358, Midrand, Gauteng Province (Liquid Telecom) – Current
- The Proposed Development of a Backup Energy Centre Including Diesel Storage and Generators, on Erf 142504, Diep River, Cape Town, Western Cape Province (Liquid Telecom) – Current
- The Proposed Development of a Thirty Meter (30m) Telecommunication Base Station and Associated Infrastructure on Portion 87 of The Farm Langverwacht No. 241, Kuils River, Western Cape Province (Atlas Tower) – Current

SPECIALIST EXPERIENCE

- Socio-Economic Impact Assessment as Part of The Application for The Amendment of The Existing Mine Right Held By Tja Naledi for The Mining of Sand, To Include Aggregate on Portion 4 of The Farm Woodlands 407, Ngwathe Local Municipality, Free State Province

ENVIRONMENTAL CONTROL OFFICER (ECO)

- Various photographic and film shoots at locations in and around Cape Town (Peninsula Permits).
- Periodic Maintenance of National Route 2 Section 4 between Swellendam and Riviersonderend, Western Cape Province (SANRAL).

OTHER EXPERIENCE

- CDM Degassing Plant – Calibration and data capture: 2018 – Present
- Residential Alien Invasive Species Report: 2019
- Plant Species Identification Report For The Widening of a The R60 Road Between Worcester And Ashton, Western Cape Province (BVI): 2018
- Bird monitoring and identification on proposed windfarms – Arcus Consultancy Services: 2017
- Youth work – Youth leader at Pinelands Baptist Church: 2012 – Present

APPENDIX D: ASSESSMENT METHODOLOGY

METHODOLOGY USED FOR THE ASSESSMENT OF POTENTIAL IMPACTS

All impacts (direct and cumulative) of the above-mentioned issues, as well as other issues that may have been identified throughout the report will be assessed in terms of the following criteria

Evaluation component	Ranking scale and description (criteria)
DURATION	**5 - Permanent** **4 - Long term**: Impact ceases after operational phase/life of the activity (> 20 years). **3 - Medium term**: Impact might occur during the operational phase/life of the activity (5 to 20 years). **2 - Short term**: Impact might occur during the construction phase (< 5 years). **1 - Immediate**
EXTENT (or spatial scale/influence of impact)	**5 - International**: Beyond National boundaries. **4 - National**: Beyond Provincial boundaries and within National boundaries. **3 - Regional**: Beyond 5 km of the proposed development and within Provincial boundaries. **2 - Local**: Within 5 km of the proposed development. **1 - Site-specific**: On site or within 100 m of the site boundary. **0** - N**one**
IRREPLACEABLE loss of resources	**5 – Definite** loss of irreplaceable resources. **4 – High** potential for loss of irreplaceable resources. **3 – Moderate** potential for loss of irreplaceable resources. **2 – Low** potential for loss of irreplaceable resources. **1 – Very low** potential for loss of irreplaceable resources. **0 - None**
REVERSIBILITY of impact	**5 –** Impact **cannot** be reversed. **4 – Low** potential that impact might be reversed. **3 – Moderate** potential that impact might be reversed. **2 – High** potential that impact might be reversed. **1 –** Impact **will be** reversible. **0 –** No impact.
MAGNITUDE of <u>NEGATIVE</u> IMPACT (at the indicated spatial scale)	**10 - Very high**: Bio-physical and/or social functions and/or processes might be *severely* altered. **8 - High**: Bio-physical and/or social functions and/or processes might be *considerably* altered. **6 - Medium**: Bio-physical and/or social functions and/or processes might be *notably* altered. **4 - Low** : Bio-physical and/or social functions and/or processes might be *slightly* altered.

	2 - Very Low: Bio-physical and/or social functions and/or processes might be *negligibly* altered. **0 - Zero**: Bio-physical and/or social functions and/or processes will remain *unaltered.*
MAGNITUDE of <u>POSITIVE</u> IMPACT (at the indicated spatial scale)	**10 - Very high (positive)**: Bio-physical and/or social functions and/or processes might be *substantially* enhanced. **8 - High (positive)**: Bio-physical and/or social functions and/or processes might be *considerably* enhanced. **6 - Medium (positive)**: Bio-physical and/or social functions and/or processes might be *notably* enhanced. **4 - Low (positive)**: Bio-physical and/or social functions and/or processes might be *slightly* enhanced. **2 - Very Low (positive)**: Bio-physical and/or social functions and/or processes might be *negligibly* enhanced. **0 - Zero (positive)**: Bio-physical and/or social functions and/or processes will remain *unaltered.*
PROBABILITY (of occurrence)	**5 - Definite**: >95% chance of the potential impact occurring. **4 - High probability**: 75% - 95% chance of the potential impact occurring. **3 - Medium probability**: 25% - 75% chance of the potential impact occurring **2 - Low probability**: 5% - 25% chance of the potential impact occurring. **1 - Improbable**: <5% chance of the potential impact occurring.
CUMULATIVE impacts	**High**: The activity is one of several similar past, present or future activities in the same geographical area, and might contribute to a very significant combined impact on the natural, cultural, and/or socio-economic resources of local, regional or national concern. **Medium**: The activity is one of a few similar past, present or future activities in the same geographical area, and might have a combined impact of moderate significance on the natural, cultural, and/or socio-economic resources of local, regional or national concern. **Low**: The activity is localised and might have a negligible cumulative impact. **None**: No cumulative impact on the environment.

Once the evaluation components have been ranked for each potential impact, the significance of each potential impact will be assessed (or calculated) using the following formula:

SP (significance points) = (duration + extent + irreplaceable + reversibility + magnitude) x probability

The maximum value is 150 SP (significance points). The unmitigated and mitigated scenarios for each potential environmental impact should be rated as the table below.

Significance Points	Environmental Significance	Description
100 – 150	**High (H)**	An impact of high significance which could influence a decision about whether or not to proceed with the proposed project, regardless of available mitigation options.
40 – 99	**Moderate (M)**	If left unmanaged, an impact of moderate significance could influence a decision about whether or not to proceed with a proposed project.
<40	**Low (L)**	An impact of low is likely to contribute to positive decisions about whether or not to proceed with the project. It will have little real effect and is unlikely to have an influence on project design or alternative motivation.
+	**Positive impact (+)**	A positive impact is likely to result in a positive consequence/effect, and is likely to contribute to positive decisions about whether or not to proceed with the project.

APPENDIX E: IMPACT RATINGS FOR THE CONSTRUCTION, OPERATIONAL AND DECOMMISSIONING PHASES

- Construction Phase Impacts

Health and Social Wellbeing Related Impacts

Increase in dust and noise

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Health and Social Wellbeing Related Impacts																				
Location of power line:	**Construction Phase**																			• Ensure dust mitigation measures are in place and put into practice • Notify residents prior to conducting activities that may cause excessive noise.
Areas within 1 km of farmhouses, towns or residential areas	**Construction activities will generate noise and dust which will create a nuisance for**	6	2	2	1	2	4	52	M	M	4	2	2	1	2	3	33	L	L	
Areas within 1 km of guesthouses or areas of social, cultural or tourism importance		6	2	2	1	2	4	52	M	M	4	2	2	1	2	3	33	L	L	

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Open/Farmland	those living in the area.	2	2	2	1	2	4	36	L	L	2	2	2	1	2	3	27	L	L	• Use attenuation for machinery where possible.
"No-go" alternative	The proposed power line will not be constructed and thus no dust or noise will be generated.	0	5	2	0	0	5	35	L (+)	L (+)										No mitigation as there will be no impact and the environment will remain unaffected.

Potential increase in crime

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Health and Social Wellbeing Related Impacts																			
Location of power line:	Construction Phase																		• Do not locate the power line near

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Areas within 1 km of farmhouses, towns or residential areas	**During construction, staff working/staying on site and a possible influx of workers may lead to an increase in crime.**	8	2	2	3	3	4	72	M	H	8	2	2	3	3	2	36	L	M	farmsteads and residential areas, within 500m, and guesthouses and tourist attractions, within 1 km. Based on consultation with individual landowners, distances could be reduced. • Contractors to strictly monitor for any non-employees on site
Areas within 1 km of guesthouses or areas of social, cultural or tourism importance		8	2	2	3	3	4	64	M	H	8	2	2	3	3	2	36	L	M	

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Open/Farmland		6	2	2	3	3	4	64	M	M	6	2	2	3	3	2	32	L	M	and to report any immediately. • All employees are required to have a form of identification. • No farm gates to be left open. • Farmers to report cases of livestock theft to the Contractor to investigate internally. • Contractors to work closely with farm watch groups.
"No-go" alternative	**The power line will not be constructed and will not affect crime levels.**	0	5	2	0	0	5	35	L (+)	L (+)										**No mitigation as there will be no impact and the environment will remain unaffected.**

Health implications

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Health and Social Wellbeing Related Impacts																			
Location of power line:	**Construction Phase**																		• Monitor dust levels and ensure dust mitigation measures are in place. • All employees to be supplied with appropriate PPE. • HIV/AIDS awareness talks to be incorporated into induction talks. • No non-employees to be allowed on the construction site/construction camp.
Areas within 1 km of farmhouses, towns or residential areas	**Construction activities could cause health related impacts and an influx of workers/work seekers may increase the spread of HIV/AIDS.**	8	2	2	3	4	3	57	M	M	8	2	2	3	4	2	38	L	L	
Areas within 1 km of guesthouses or areas of social, cultural or tourism importance		8	2	2	3	4	3	57	M	M	8	2	2	3	4	2	38	L	L	
Open/Farmland		8	2	2	3	4	2	38	L	L	8	2	2	3	4	1	19	L	L	
"No-go" alternative	**The proposed power line will not be constructed and thus no health impacts will occur.**	0	5	2	0	0	5	45	L (+)	L (+)										**No mitigation as there will be no impact and the environment will remain unaffected.**

Positive psychological effects

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Health and Social Wellbeing Related Impacts																				
Location of power line:	**Construction Phase**																			• Do not create false expectations with regards to the number of jobs that can/will be created. • As far as possible make use of local labour. • Minimise negative psychological impacts by not routeing the power line near tourist attractions and /or places of cultural significance.
Areas within 1 km of farmhouses, towns or residential areas	**Knowledge of the proposed development and construction activities may create a renewed sense of hope for obtaining employment and future economic development.**	4	2	3	0	2	2	22	L (+)	L (+)	4	2	3	0	2	33	44	L (+)	L (+)	
Areas within 1 km of guesthouses or areas of social, cultural or tourism importance		4	2	3	2	3	3	42	M	M	2	2	3	2	3	3	36	L	L	
Open/Farmland		2	2	3	0	2	2	18	L (+)	L (+)	2	2	3	0	2	2	18	L (+)	L (+)	

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
"No-go" alternative	**The proposed power line will not be constructed and thus no psychological impacts will occur.**	No change to the current status quo.									No change to the current status quo.									**No mitigation as there will be no impact and the society will remain unaffected.**

Quality of the Living Environment

Disruption of daily living

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Quality of the Living Environment Related Impacts																			
Location of power line:	**Construction Phase**																			• Minimise disturbance to

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Areas within 1 km of farmhouses, towns or residential areas	**Construction activities will generate noise and activities may interfere with daily life for those nearby.**	6	2	2	2	2	4	56	M	M	4	2	2	2	2	3	36	L	L	landowners/inhabitants through proper planning and notify them in good time of when access will be needed. • Ensure noise is kept to a minimum. • Do not block access roads. • Do not remove fences prior to consent of landowner.
Areas within 1 km of guesthouses or areas of social, cultural or tourism importance		6	2	2	2	2	4	56	M	M	4	2	2	2	2	3	36	L	M	
Open/Farmland		4	2	2	2	2	3	36	L	L	2	2	2	2	2	2	20	L	L	
"No-go" alternative	**The proposed power line will not be constructed therefore there will be no disruptions to daily life.**	0	5	2	0	0	5	45	L (+)	L (+)										**No mitigation as there will be no impact and the environment will remain unaffected.**

Loss of sense of place

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceabl e	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceabl e	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Quality of the Living Environment Related Impacts																			
Location of power line:	**Construction Phase**																		• Keep noise and dust generating activities to a minimum and time such activities between 08:00 – 17:00 during weekdays. • Keep construction sites/camps neat and tidy, screen with inconspicuous netting, paint reflective materials a matt colour and minimise lighting at night. • Employees to conduct themselves in an appropriate manner. A Code of Conduct must be drawn up and the employees are to abide by the code.
Areas within 1 km of farmhouses, towns or residential areas	**Construction activities will generate noise, dust and visual impacts which will detract from the areas sense of place.**	6	2	2	3	2	4	60	M	M	4	2	2	3	2	3	39	L	L
Areas within 1 km of guesthouses or areas of social, cultural or tourism importance		8	2	2	3	2	4	68	M	M	6	2	2	3	2	3	45	M	M
Open/Farmland		4	2	2	3	2	2	26	L	L	4	2	2	3	2	1	13	L	L

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceabl e	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceabl e	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
"No-go" alternative	The proposed power line will not be constructed thus 'sense of place' will not be lost.	0	5	2	1	1	5	45	M (+)	M (+)										No mitigation as the impact is positive.

Economic and Material Wellbeing Impacts (Negative)

Decreased tourism potential for the surrounding area

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Economic and Material Wellbeing Related Impacts (Negative)																			
Location of power line:	Construction Phase																		• Avoid placing the powerline near

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Areas within 1 km of farmhouses, towns or residential areas	**Construction activities will decrease the potential for tourism in surrounding areas.**	2	2	2	2	1	2	18	L	L	2	2	2	2	1	1	9	L	L	sensitive tourism locations. • Ensure dust mitigation measures are in place. • Screen construction site/camp and keep neat. • Clear as little vegetation as possible. • Strictly adhere to working hours 08:00-17:00. • Avoid construction over weekends, holidays and the flower season (September / October).
Areas within 1 km of guesthouses or areas of social, cultural or tourism importance		8	2	2	4	3	4	76	M	H	8	2	2	3	3	3	54	M	M	
Open/Farmland		2	2	2	2	1	2	18	L	L	2	2	2	2	1	1	9	L	L	

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
"No-go" alternative	The proposed power line will not be constructed thus tourism will not be affected.	0	5	2	1	1	5	45	M (+)	M (+)										No mitigation as the impact is positive.

Economic and Material Wellbeing Impacts (Positive)

Increased employment opportunities during the construction phase

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Economic and Material Well Being Related Impacts (Positive)																			
Location of power line:	Construction Phase																		• As far as possible, hire staff from the surrounding areas. • As far as possible make use of local service providers.
Areas within 1 km of farmhouses, towns or residential areas	Construction activities will create	6	2	3	0	0	3	33	L (+)	L (+)	8	2	3	0	0	4	52	M (+)	M (+)	

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION								AFTER MITIGATION									
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Areas within 1 km of guesthouses or areas of social, cultural or tourism importance	employment opportunities for those living in the area.	4	2	3	0	0	3	27	L (+)	L (+)	6	2	3	0	0	4	44	M (+)	M (+)	
Open/Farmland		2	2	3	0	0	4	28	L (+)	L (+)	6	2	3	0	0	3	33	L (+)	L (+)	
"No-go" alternative	The proposed power line will not be constructed and thus no new employment opportunities will be created.	0	5	0	0	0	5	25	L	L										No mitigation as no development will take place.

Economic knock-on effects

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Economic and Material Well Being Related Impacts (Positive)																			
Location of power line:	**Construction Phase**																		• As far as possible make use of local service providers for accommodation, sustenance, equipment hire, construction materials etc.
Areas within 1 km of farmhouses, towns or residential areas	**During the Construction Phase employees will spend some of their earnings locally and contractors will make use of local service providers.**	4	2	3	0	0	4	36	L (+)	L (+)	6	2	3	0	0	4	44	M (+)	M (+)	
Areas within 1 km of guesthouses or areas of social, cultural or tourism importance		3	2	3	0	0	3	24	L (+)	L (+)	5	2	3	0	0	4	40	M (+)	M (+)	
Open/Farmland		2	2	3	0	0	2	14	L (+)	L (+)	6	2	3	0	0	3	33	L (+)	L (+)	

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
"No-go" alternative	The proposed power line will not be constructed and thus no income will be spent in the surrounding areas.	4	5	2	0	0	4	44	M	M										No mitigation as no development will take place.

Cultural Impacts

Detracting from important cultural/heritage areas

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Cultural Related Impacts																			
Location of power line:	**Construction Phase**																			• Avoid placing the power line near

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Areas within 1 km of farmhouses, towns or residential areas	**Construction activities will create disturbance and could detract from areas or sites of cultural/heritage significance.**	4	2	2	2	2	3	36	L	L	2	2	2	2	2	2	20	L	L	areas or sites of cultural/heritage significance. • Ensure dust mitigation measures are in place. • Screen construction sites/camps and keep neat. • Clear as little vegetation as possible. • Strictly adhere to working hours 08:00-17:00. • Avoid construction over weekends,
Areas within 1 km of guesthouses or areas of social, cultural or tourism importance		8	2	2	3	2	4	68	M	M	6	2	2	3	2	2	30	L	L	
Open/Farmland		4	2	2	2	2	2	24	L	L	2	2	2	2	2	1	10	L	L	

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
"No-go" alternative	**The proposed power line will not be constructed and thus no areas or sites of cultural/heritage significance will be affected.**	No change to the current status quo.									No change to the current status quo.									**No mitigation as there will be no impact and the environment will remain unaffected.**

Decreased availability of medicinal plants for traditional doctors

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Quality of the Living Environment Related Impacts																			

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Location of power line:	**Construction Phase**																			• Any endangered and/or threatened plant species occurring within the development footprint should be transplanted. • Following construction, rehabilitation of cleared areas should ensure that the species diversity is restored to that of the original area as far as is possible.
Areas within 1 km of farmhouses, towns or residential areas	**Vegetation will be cleared for the pylon, potentially decreasing the availably of medicinal plants for traditional doctors.**	6	3	1	3	3	2	32	L	L	4	3	1	3	2	2	26	L	L	
Areas within 1 km of guesthouses or areas of social, cultural or tourism importance		6	3	1	3	3	2	32	L	L	4	3	1	3	2	2	26	L	L	
Open/Farmland		6	3	1	3	3	2	32	L	L	4	3	1	3	2	2	26	L	L	

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
"No-go" alternative	**The proposed power line will not be constructed thus medicinal plants will be impacted.**	No change to the current status quo.									No change to the current status quo.									**No mitigation as there will be no impact.**

Family and Community Impacts

Disruption of family structures

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Health and Social Wellbeing Related Impacts																			
Location of power line:	**Construction Phase**																		

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Areas within 1 km of farmhouses, towns or residential areas	**Construction workers may conduct themselves in a potentially risky manner which could affect family and/or social structures**	8	2	2	2	3	3	51	M	M	7	2	2	2	3	2	32	L	L	• No unauthorized persons to be permitted on site. • The Proponent could consider providing transport for workers to and from site. • The contractor should draw up a Code of Conduct. Workers conducting themselves in a way contrary to this should be dismissed. Any dismissals must be in line with South
Areas within 1 km of guesthouses or areas of social, cultural or tourism importance		8	2	2	2	3	3	51	M	M	7	2	2	2	3	2	32	L	L	

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Open/Farmland		6	2	2	2	3	3	45	M	M	6	2	2	2	3	2	30	L	L	Africa's labour legislation. • When construction will span a long period of time, the contractor should make allowance for construction workers to return home either on weekends or a regular basis. • As far as feasible fill positions with locals from the area.
"No-go" alternative	**The proposed power line will not be constructed thus family and social structures will not be impacted.**	No change to the current status quo.									No change to the current status quo.									No mitigation as there will be no impact

Increased anxiety amongst farmers

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Family and Community Related Impacts																				
Location of power line:	**Construction Phase**																			• Maintain contact with farmers in the surrounding area and keep them updated regarding planned construction activities. • Contractors to work closely with farm watch groups.
Areas within 1 km of farmhouses, towns or residential areas	**The presence of construction workers and a potential influx of work seekers in the area may increase anxiety**	8	2	2	3	3	4	72	M	M	4	2	2	3	2	3	39	L	L	
Areas within 1 km of guesthouses or areas of social, cultural or tourism importance		6	2	2	2	3	3	45	M	M	2	2	2	2	2	2	20	L	L	

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Open/Farmland	**amongst farmers who fear becoming victims of crime.**	6	2	2	3	3	4	64	M	M	3	2	2	3	2	3	36	L	L	• Contractors to strictly monitor for any non-employees on site and to report any immediately. • All employees are required to have a form of identification. • No farm gates to be left open. • Farmers to report cases of livestock theft to the Contractor to investigate internally.
"No-go" alternative	**The proposed power line will not be constructed and will not affect the actual or perceived risk of crime.**	No change to the current status quo.									No change to the current status quo.									**No mitigation as there will be no impact and the environment will remain unaffected.**

Improved quality of life for impoverished communities (job creation)

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Family and Community Related Impacts																				
Location of power line:	**Construction Phase**																			• As far possible employ local personnel from the surrounding areas. • Do not place the power line near sensitive areas which may incur job losses if negatively impacted.
Areas within 1 km of farmhouses, towns or residential areas	**The construction phase will create employment opportunities.**	8	2	3	0	1	2	28	L (+)	L (+)	8	2	3	0	1		42	M (+)	M (+)	
Areas within 1 km of guesthouses or areas of social, cultural or tourism importance		6	2	3	2	2	3	45	M	M	6	2	3	2	2	2	30	L	L	
Open/Farmland		8	2	3	0	1	2	28	L (+)	L (+)	8	2	3	0	1	3	42	M (+)	M (+)	
"No-go" alternative	**The proposed power line will not be constructed and no jobs will be created or lost.**	4	5	3	0	3	4	60	M	M										**No mitigation as the power line will not be constructed.**

- **Operational Phase Impacts**

Health and Social Wellbeing Related Impacts

Positive psychological effect

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Quality of The Living Environment Related Impacts																			
Location of power line:	**Operational Phase**																		• As far as possible employ local personnel from the surrounding areas. • Do not place the power line where it could negatively impact existing industries.
Areas within 1 km of farmhouses, towns or residential areas	**Construction of the power line may have positive or negative psychological effects as locals anticipate either future economic development or job losses.**	2	3	3	1	3	2	24	L (+)	L (+)	2	3	3	1	3	3	36	L (+)	L (+)	
Areas within 1 km of guesthouses or areas of social, cultural or tourism importance		4	3	3	1	3	3	42	M	M	4	3	3	1	3	1	14	L	L	
Open/Farmland		4	3	3	1	3	2	28	L (+)	L (+)	4	3	3	1	3	3	42	M (+)	M (+)	

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
"No-go" alternative	The proposed power line will not be constructed and will thus have no psychological impacts.	0	5	0	0	0	5	25	L (+)	L (+)										No mitigation as there will be no impact and the environment will remain unaffected.

Quality of the Living Environment

Loss of sense of place

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Quality of The Living Environment Related Impacts																			
Location of power line:	Operational Phase																		• Avoid placing the power line within

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Areas within 1 km of farmhouses, towns or residential areas	**The power line will present a visual intrusion which will detract from the areas sense of place.**	6	4	1	3	4	4	72	M	M	4	4	1	3	4	2	32	L	L	or near No-Go areas. • Avoid placing the power line near areas or sites of cultural/heritage significance. • The route of power line should place the line in such as position that potential for visual intrusion is minimised. • Over time weathering will cause pylons to fade. As such, painting shiny structures a mat non-reflective colour should not be necessary.
Areas within 1 km of guesthouses or areas of social, cultural or tourism importance		8	4	1	3	4	4	80	M	H	6	4	1	3	4	2	36	L	M	
Open/Farmland		4	4	1	2	4	3	45	M	M	4	4	1	2	4	2	30	L	L	

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
"No-go" alternative	The proposed power line will not be constructed and no visual intrusion will be caused.	0	5	0	0	0	5	25	L (+)	L (+)										No mitigation as there will be no impact and the environment will remain unaffected.

Economic and Material Wellbeing Impacts (Negative)

Decreased tourism potential for the surrounding area

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Economic and Material Wellbeing Related Impacts (Negative)																			
Location of power line:	**Operational Phase**																		• Avoid placing the power line within

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Areas within 1 km of farmhouses, towns or residential areas	**The visual intrusion of the power line may detract from scenic landscapes and affect the tourism potential of important tourism areas.**	4	4	1	3	2	4	56	M	M	3	4	1	3	4	2	30	L	L	or near No-Go areas. • Avoid placing the power line near areas or sites of cultural/heritage significance. • Route of power line should place the line in such as position that potential for visual intrusion is minimised. • Over time weathering will cause pylons to fade. As such, painting shiny structures a mat non-reflective colour should not be necessary.
Areas within 1 km of guesthouses or areas of social, cultural or tourism importance		8	4	1	3	3	4	76	M	H	6	4	1	3	4	2	36	L	M	
Open/Farmland		4	4	1	2	2	3	39	L	M	3	4	1	2	4	2	28	L	L	

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
"No-go" alternative	The proposed power line will not be constructed and tourism potential will not be impacted.	0	0	0	0	0	5	25	L (+)	L (+)										No mitigation as there will be no impact and the environment will remain unaffected.

Economic and Material Wellbeing Impacts (Positive)

Benefits for landowners receiving compensation

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Economic and Material Well Being Related Impacts (Positive)																			
Location of power line:	Operational Phase																		• Where the power line passes through

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION								AFTER MITIGATION									
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Areas within 1 km of farmhouses, towns or residential areas	**Landowners over whose land the power line traverses will receive compensation.**	8	4	2	0	0	5	70	M (+)	M (+)	9	4	2	0	0	5	75	M (+)	M (+)	communal ground make meaningful compensation that will aid in the long-term upliftment of communities, e.g. through the provision of infrastructure or facilities.
Areas within 1 km of guesthouses or areas of social, cultural or tourism importance		8	4	2	0	0	5	70	M (+)	M (+)	9	4	2	0	0	5	75	M (+)	M (+)	
Open/Farmland		8	4	2	0	0	5	70	M (+)	M (+)	9	4	2	0	0	5	75	M (+)	M (+)	
"No-go" alternative	**The proposed power line will not be constructed, and no landowners will receive compensation.**	2	5	2	0	0	4	36	L	L										**No mitigation as the power line will not be constructed.**

Economic knock-on effects

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Economic and Material Well Being Related Impacts (Positive)																			
Location of power line:	**Operational Phase**																		• Do not place the power line near sensitive receptors, such as guesthouses that could be negatively affected.
Areas within 1 km of farmhouses, towns or residential areas	**The power line will facilitate new IPP developments which will have positive knock-on effects such as job creation.**	4	4	3	2	3	3	48	M	M	4	4	3	0	3	3	45	M (+)	M (+)	
Areas within 1 km of guesthouses or areas of social, cultural or tourism importance		6	4	3	3	3	3	57	M	M	4	4	3	0	3	3	42	M (+)	M (+)	
Open/Farmland		8	4	4	0	3	4	76	MH (+)	H (+)	8	4	4	0	3	5	95	MH (+)	H (+)	

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
"No-go" alternative	The proposed power line will not be constructed and further IPP developments will be restricted.	8	4	4	0	0	4	64	M	H										No mitigation as the only alternative is to construct the power line.

Cultural Impacts

Detracting from important cultural/heritage areas

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Cultural Related Impacts																			
Location of power line:	**Operational Phase**																			• Avoid placing the power line within

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Areas within 1 km of farmhouses, towns or residential areas	**The power line will create a visual intrusion which may detract from important cultural/heritage areas and sites.**	6	4	1	3	3	3	51	M	M	4	4	1	3	3	2	30	L	L	or near No-Go areas. • Avoid placing the power line near areas or sites of cultural/heritage significance. • Route of power line should place the line in such as position that potential for visual intrusion is minimised. • Over time weathering will cause pylons to fade. As such, painting shiny structures a mat non-reflective colour should not be necessary.
Areas within 1 km of guesthouses or areas of social, cultural or tourism importance		8	4	1	4	3	4	80	M	H	4	4	1	4	3	2	32	L	L	
Open/Farmland		6	4	1	3	3	3	51	L	L	4	4	1	3	3	2	30	L	L	

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
"No-go" alternative	**The power line will not be constructed and no cultural/heritage areas will be impacted.**	No change to the current status quo.									No change to the current status quo.									**No mitigation as there will be no impact and the environment will remain unaffected.**

Family and Community Impacts

Improved quality of life for impoverished communities

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Family and Community Related Impacts																			
Location of power line:	**Operational Phase**																		• Where the power line passes through

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION								AFTER MITIGATION									
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Areas within 1 km of farmhouses, towns or residential areas	**Should the power line pass through communal land and poor communities could benefit from compensation.**	6	4	2	0	0	2	24	L (+)	L (+)	8	4	2	0	0	3	42	M (+)	M (+)	communal ground make meaningful compensation that will aid in the long term upliftment of communities, e.g. through the provision of infrastructure or facilities.
Areas within 1 km of guesthouses or areas of social, cultural or tourism importance		6	4	2	0	0	2	24	L (+)	L (+)	8	4	2	0	0	3	42	M (+)	M (+)	
Open/Farmland		6	4	2	0	0	2	24	L (+)	L (+)	8	4	2	0	0	3	42	M (+)	M (+)	
"No-go" alternative	**The proposed power line will not be constructed and thus communities will not potentially benefit from the power line.**	4	5	2	0	0	3	33	L	L										**No mitigation as the power line will not be constructed.**

Institutional, Legal, Political and Equity Impacts

Increased infrastructure capacity for Independent Power Producers (IPPs)

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Institutional, Legal, Political and Equity Impacts																			
Location of power line:	Operational Phase																		N/A
Areas within 1 km of farmhouses, towns or residential areas	The power line will provide the necessary infrastructure to support existing and future IPP projects.	8	4	3	0	2	5	75	MH (+)	MH (+)									
Areas within 1 km of guesthouses or areas of social, cultural or tourism importance		8	4	3	0	2	5	75	MH (+)	MH (+)									
Open/Farmland		8	4	3	0	2	5	75	MH (+)	MH (+)									

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
"No-go" alternative	The proposed power line will not be constructed and future IPP developments will be restricted.	8	5	4	0	0	4	68	M	H										No mitigation as the only alternative is to construct the power line.

Sterilisation of minerals

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Institutional, Legal, Political and Equity Related Impacts																			
Location of power line:	Operational Phase																		• Consult with the relevant

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Areas within 1 km of farmhouses, towns or residential areas	**The power line may cross over land containing important minerals and 'sterilise' the land.**	8	4	1	4	3	3	60	M	M	6	4	1	4	3	2	36	L	L	authorities with regards to mineral deposits and mining rights and ensure the line does not cross areas of known mineral deposits and/or where existing mining rights exist. This should be explored in detail once the final route is chosen.
Areas within 1 km of guesthouses or areas of social, cultural or tourism importance		8	4	1	4	3	3	60	M	M	6	4	1	4	3	2	36	L	L	
Open/Farmland		8	4	1	4	3	3	60	M	M	6	4	1	4	3	2	36	L	L	
"No-go" alternative	**The proposed power line will not be constructed, and no land will be 'sterilised'.**	No change to the current status quo.									No change to the current status quo.									**No mitigation as there will be no impact and the environment will remain unaffected.**

- Decommissioning Phase Impacts

Health and Social Wellbeing Related Impacts

Increase in dust and noise

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Health and Social Wellbeing Related Impacts																				
Location of power line:	**Decommissioning Phase**																			• Ensure dust mitigation measures are in place and put into practice • Notify residents prior to conducting activities that may cause excessive noise. • Use attenuation for machinery where possible.
Areas within 1 km of farmhouses, towns or residential areas	**Construction activities will generate noise and dust which will create a nuisance for those living in the area.**	6	2	2	1	2	4	52	M	M	4	2	2	1	2	3	33	L	L	
Areas within 1 km of guesthouses or areas of social, cultural or tourism importance		6	2	2	1	2	4	52	M	M	4	2	2	1	2	3	33	L	L	
Open/Farmland		2	2	2	1	2	4	36	L	L	2	2	2	1	2	3	27	L	L	

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
"No-go" alternative	The proposed power line will not be decommissioned and thus no dust or noise will be generated.	0	5	2	0	0	5	35	L (+)	L (+)										No mitigation as there will be no impact and the environment will remain unaffected.

Potential increase in crime

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Health and Social Wellbeing Related Impacts																			
Location of power line:	Decommissioning Phase																		• Do not locate the power line near

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Areas within 1 km of farmhouses, towns or residential areas	**During decommissioning, staff working/staying on site and a possible influx of workers may lead to an increase in crime.**	8	2	2	3	3	4	72	M	H	8	2	2	3	3	2	36	L	M	farmsteads and residential areas, within 500m, and guesthouses and tourist attractions, within 1 km. Based on consultation with individual landowners, distances could be reduced.
Areas within 1 km of guesthouses or areas of social, cultural or tourism importance		8	2	2	3	3	4	64	M	H	8	2	2	3	3	2	36	L	M	• Contractors to strictly monitor for any non-employees on site

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Open/Farmland		6	2	2	3	3	4	64	M	M	6	2	2	3	3	2	32	L	M	and to report any immediately. • All employees are required to have a form of identification. • No farm gates to be left open. • Farmers to report cases of livestock theft to the Contractor to investigate internally. • Contractors to work closely with farm watch groups.
"No-go" alternative	**The power line will not be decommissioned and will not affect crime levels.**	No change to the current status quo.									No change to the current status quo.									**No mitigation as there will be no impact and the environment will remain unaffected.**

Health implications

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Health and Social Wellbeing Related Impacts																			
Location of power line:	**Decommissioning Phase**																			• Monitor dust levels and ensure dust mitigation measures are in place. • All employees to be supplied with appropriate PPE. • HIV/AIDS awareness talks to be incorporated into induction talks. • No non-employees to be allowed on the construction site/construction camp.
Areas within 1 km of farmhouses, towns or residential areas	**Decommissioning activities could cause health related impacts and an influx of workers/work seekers may increase the spread of HIV/AIDS.**	8	2	2	3	4	3	57	M	M	8	2	2	3	4	2	38	L	L	
Areas within 1 km of guesthouses or areas of social, cultural or tourism importance		8	2	2	3	4	3	57	M	M	8	2	2	3	4	2	38	L	L	
Open/Farmland		8	2	2	3	4	2	38	L	L	8	2	2	3	4	1	19	L	L	
"No-go" alternative	**The proposed power line will not be decommissioned and thus no health impacts will occur.**	No change to the current status quo.									No change to the current status quo.									**No mitigation as there will be no impact and the environment will remain unaffected.**

Quality of the Living Environment

Disruption of daily living

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Quality of the Living Environment Related Impacts																				
Location of power line:	**Decommissioning Phase**																			• Minimise disturbance to landowners/inhabitants through proper planning and notify them in good time of when access will be needed. • Ensure noise is kept to a minimum. • Do not block access roads. • Do not remove fences prior to consent of landowner.
Areas within 1 km of farmhouses, towns or residential areas	**Decommissioning activities will generate noise and activities may interfere with daily life for those nearby.**	6	2	2	2	2	4	56	M	M	4	2	2	2	2	3	36	L	L	
Areas within 1 km of guesthouses or areas of social, cultural or tourism importance		6	2	2	2	2	4	56	M	M	4	2	2	2	2	3	36	L	M	
Open/Farmland		4	2	2	2	2	3	36	L	L	2	2	2	2	2	2	20	L	L	

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
"No-go" alternative	**The proposed power line will not be decommissioned therefore there will be no disruptions to daily life.**	No change to the current status quo.									No change to the current status quo.									**No mitigation as there will be no impact and the environment will remain unaffected.**

Loss of sense of place

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Quality of the Living Environment Related Impacts																			
Location of power line:	**Decommissioning Phase**																			• Keep noise and dust generating

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceabl e	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceabl e	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Areas within 1 km of farmhouses, towns or residential areas	**Decommissioning activities will generate noise, dust and visual impacts which will detract from the areas sense of place.**	6	2	2	3	2	4	60	M	M	4	2	2	3	2	3	39	L	L	activities to a minimum and time such activities between 08:00 – 17:00 during weekdays. • Keep construction sites/camps neat and tidy, screen with inconspicuous netting, paint reflective materials a matt colour and minimise lighting at night. • Employees to conduct themselves in an appropriate manner. A Code of Conduct must be drawn up and the employees are to abide by the code.
Areas within 1 km of guesthouses or areas of social, cultural or tourism importance		8	2	2	3	2	4	68	M	M	6	2	2	3	2	3	45	M	M	
Open/Farmland		4	2	2	3	2	2	26	L	L	4	2	2	3	2	1	13	L	L	

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceabl e	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceabl e	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
"No-go" alternative	**The proposed power line will not be decommissioned thus 'sense of place' will not be affected.**	No change to the current status quo.									No change to the current status quo.									**No mitigation as no impact will occur.**

Economic and Material Wellbeing Impacts (Negative)

Decreased tourism potential for the surrounding area

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Economic and Material Wellbeing Related Impacts (Negative)																			
Location of power line:	**Decommissioning Phase**																			• Avoid placing the power line near

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Areas within 1 km of farmhouses, towns or residential areas	**Decommissioning activities will decrease the potential for tourism in surrounding areas.**	2	2	2	2	1	2	18	L	L	2	2	2	2	1	1	9	L	L	sensitive tourism locations. • Ensure dust mitigation measures are in place. • Screen construction site/camp and keep neat. • Clear as little vegetation as possible. • Strictly adhere to working hours 08:00-17:00. • Avoid construction over weekends, holidays and the flower season (September / October).
Areas within 1 km of guesthouses or areas of social, cultural or tourism importance		8	2	2	4	3	4	76	M	H	8	2	2	3	3	3	54	M	M	
Open/Farmland		2	2	2	2	1	2	18	L	L	2	2	2	2	1	1	9	L	L	

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
"No-go" alternative	**The proposed power line will not be decommissioned and thus tourism will not be affected.**	No change to the current status quo.									No change to the current status quo.									**No mitigation as no impact will occur.**

Economic and Material Wellbeing Impacts (Positive)

Increased employment opportunities during the decommissioning phase

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Economic and Material Well Being Related Impacts (Positive)																			
Location of power line:	**Decommissioning Phase**																		

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION								AFTER MITIGATION									
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Areas within 1 km of farmhouses, towns or residential areas	**Decommissioning activities will create new employment opportunities for those living in the area.**	6	2	3	0	0	3	33	L (+)	L (+)	8	2	3	0	0	4	52	M (+)	M (+)	• As far as possible, hire staff from the surrounding areas. • As far as possible make use of local service providers.
Areas within 1 km of guesthouses or areas of social, cultural or tourism importance		4	2	3	0	0	3	27	L (+)	L (+)	6	2	3	0	0	4	44	M (+)	M (+)	
Open/Farmland		2	2	3	0	0	4	28	L (+)	L (+)	6	2	3	0	0	3	33	L (+)	L (+)	
"No-go" alternative	**The proposed power line will not be decommissioned and thus no new employment opportunities will be created.**	0	5	0	0	0	5	25	L	L										**No mitigation as no decommissioning will take place.**

Economic knock-on effects

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Economic and Material Well Being Related Impacts (Positive)																				
Location of power line:	**Decommissioning Phase**																			• As far as possible make use of local service providers for accommodation, sustenance, equipment hire, construction materials etc.
Areas within 1 km of farmhouses, towns or residential areas	**During the decommissioning employees will spend some of their earnings locally and contractors will make use of local service providers.**	4	2	3	0	0	4	36	L (+)	L (+)	6	2	3	0	0	4	44	M (+)	M (+)	
Areas within 1 km of guesthouses or areas of social, cultural or tourism importance		3	2	3	0	0	3	24	L (+)	L (+)	5	2	3	0	0	4	40	M (+)	M (+)	
Open/Farmland		2	2	3	0	0	2	14	L (+)	L (+)	6	2	3	0	0	3	33	L (+)	L (+)	

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
"No-go" alternative	**The proposed power line will not be decommissioned and thus no income will be spent in surrounding areas.**	No change to the current status quo.									No change to the current status quo.									**No mitigation as no impact will occur.**

Cultural Impacts

Detracting from important cultural/heritage areas

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Cultural Related Impacts																			
Location of power line:	**Decommissioning Phase**																			• Avoid placing the power line near

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Areas within 1 km of farmhouses, towns or residential areas	**Decommissioning activities will create disturbance and could detract from areas or sites of cultural/heritage significance.**	4	2	2	2	2	3	36	L	L	2	2	2	2	2	2	20	L	L	areas or sites of cultural/heritage significance. • Ensure dust mitigation measures are in place. • Screen construction sites/camps and keep neat. • Clear as little vegetation as possible. • Strictly adhere to working hours 08:00-17:00. • Avoid construction over weekends,
Areas within 1 km of guesthouses or areas of social, cultural or tourism importance		8	2	2	3	2	4	68	M	M	6	2	2	3	2	2	30	L	L	
Open/Farmland		4	2	2	2	2	2	24	L	L	2	2	2	2	2	1	10	L	L	

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
"No-go" alternative	The proposed power line will not be decommissioned and thus no areas or sites of cultural/heritage significance will be affected.	No change to the current status quo.									No change to the current status quo.									No mitigation as there will be no impact and the environment will remain unaffected.

Family and Community Impacts

Disruption of family structures

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Health and Social Wellbeing Related Impacts																			
Location of power line:	Decommissioning Phase																		

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Areas within 1 km of farmhouses, towns or residential areas	**Construction workers may conduct themselves in a potentially risky manner which could affect family and/or social structures**	8	2	2	2	3	3	51	M	M	7	2	2	2	3	2	32	L	L	• No unauthorized persons to be permitted on site. • The Proponent could consider providing transport for workers to and from site. • The contractor should draw up a Code of Conduct. Workers conducting themselves in a way contrary to this should be dismissed. Any dismissals must be in line with South
Areas within 1 km of guesthouses or areas of social, cultural or tourism importance		8	2	2	2	3	3	51	M	M	7	2	2	2	3	2	32	L	L	

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Open/Farmland		6	2	2	2	3	3	45	M	M	6	2	2	2	3	2	30	L	L	Africa's labour legislation. • When construction will span a long period of time, the contractor should make allowance for construction workers to return home either on weekends or a regular basis. • As far as feasible fill positions with locals from the area.
"No-go" alternative	**The proposed power line will not be decommissioned thus family and social structures will not be impacted.**	No change to the current status quo.									No change to the current status quo.									**No mitigation as no impact will occur.**

Increased anxiety amongst farmers

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Family and Community Related Impacts																				
Location of power line:	**Decommissioning Phase**																			• Maintain contact with farmers in the surrounding area and keep them updated regarding planned construction activities. • Contractors to work closely with farm watch groups. • Contractors to strictly monitor for any non-
Areas within 1 km of farmhouses, towns or residential areas	**The presence of construction workers and a potential influx of work seekers in the area may increase anxiety amongst farmers who fear**	8	2	2	3	3	4	72	M	M	4	2	2	3	2	3	39	L	L	
Areas within 1 km of guesthouses or areas of social, cultural or tourism importance		6	2	2	2	3	3	45	M	M	2	2	2	2	2	2	20	L	L	

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Open/Farmland	**becoming victims of crime.**	6	2	2	3	3	4	64	M	M	3	2	2	3	2	3	36	L	L	employees on site and to report any immediately. • All employees are required to have a form of identification. • No farm gates to be left open. • Farmers to report cases of livestock theft to the Contractor to investigate internally.
"No-go" alternative	**The proposed power line will not be decommissioned and will not affect the actual or perceived risk of crime.**	No change to the current status quo.									No change to the current status quo.									**No mitigation as there will be no impact and the environment will remain unaffected.**

Improved quality of life for impoverished communities (job creation)

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Family and Community Related Impacts																				
Location of power line:	**Decommissioning Phase**																			• As far possible employ local personnel from the surrounding areas. • Do not place the power line near sensitive areas which may incur job losses if negatively impacted.
Areas within 1 km of farmhouses, towns or residential areas	**The decommissioning phase will create employment opportunities.**	8	2	3	0	1	2	28	L (+)	L (+)	8	2	3	0	1		42	M (+)	M (+)	
Areas within 1 km of guesthouses or areas of social, cultural or tourism importance		6	2	3	2	2	3	45	M	M	4	2	3	2	2	2	26	L (+)	L (+)	
Open/Farmland		8	2	3	0	1	2	28	L (+)	L (+)	8	2	3	0	1	3	42	M (+)	M (+)	

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
"No-go" alternative	**The proposed power line will not be decommissioned and no jobs will be created or lost.**	No change to the current status quo.									No change to the current status quo.									**No mitigation as there will be no impact and the environment will remain unaffected.**