PHASE 2 OF THE PROPOSED BBR ENERGY FACILITY IN THE MOGALAKWENA LOCAL MUNICIPALITY, LIMPOPO PROVINCE

SOCIO-ECONOMIC IMPACT ASSESSMENT

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SEPTEMBER 2026

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LIST OF ACRONYMS

BESS	Battery Energy Storage System
IDP	Integrated Development Plan
GDP	Gross Domestic Product
I&APs	Interested and Affected Parties
NEMA	National Environmental Management Act
PSIRA	Private Security Industry Regulatory Authority
PV	Photovoltaic
SAPS	South African Police Service
SDF	Spatial Development Framework
SEIA	Socio-economic Impact Assessment
SPLUMA	Spatial Planning and Land Use Management Act

EXECUTIVE SUMMARY

The purpose of this Socio-Economic Impact Assessment (SEIA) is to identify and assess the socio-economic impacts associated with Phase 2 of the proposed BBR Energy Facility, approximately 46 km west of Polokwane in the Limpopo Province. The proposed Energy Facility is a hybrid renewable-energy development consisting of a utility-scale solar photovoltaic (PV) plant integrated with a Battery Energy Storage System (BESS). The overall development will extend over approximately 300 ha of land and will have a solar PV capacity of up to 200 MWAC and a BESS capacity of up to 150 MW / 600 MWh. The facility will connect to the Eskom Borutho Substation through a 132 kV transmission line.

The site of the proposed Energy Facility straddles the boundary between the Polokwane and Mogalakwena Local Municipalities, with Phase 2 situated in the Mogalakwena Local Municipality. The site is located on communal land administered by the Bohwa Bja Rena Communal Property Trust. The affected socio-economic environment is predominantly rural and characterised by dispersed settlements, communally administered land and limited infrastructure. Polokwane and Mokopane serve as the key urban, economic and service centres of the broader affected area.

The most significant sensitive receptors in the affected socio-economic environment include unemployed and low-income households, particularly those located in surrounding rural settlements, as well as people with relatively low levels of education, post-school training and access to formal economic opportunities. The local municipal economies are also sensitive receptors because they are concentrated in a limited number of economic sectors and have experienced modest and uneven economic growth. Inadequate energy security represents an additional sensitive receptor because electricity constraints threaten investment, service delivery and local economic development. Collectively, these receptors reflect a context of substantial

unemployment, poverty, inequality and socio-economic vulnerability, increasing the sensitivity of the area to both the positive and negative impacts of the proposed development.

The SEIA applied a combination of qualitative and quantitative research techniques. A baseline profile of the affected socio-economic environment was prepared, after which the research findings were considered against a range of socio-economic change processes and impact categories. The construction, operational and decommissioning phases of the proposed Energy Facility were considered. The following categories and socio-economic impacts were subsequently identified:

Economic impacts: Phase 2 is a capital-intensive development, with an estimated construction cost of approximately R7.1 billion. Construction expenditure is expected to stimulate economic activity, support employment and increase demand for goods and services. The associated impacts include:

- Creation of employment opportunities during the construction and operational phases of the proposed Energy Facility (direct and indirect impacts).
- Contribution to local GDP and economic development through capital expenditure during the construction phase (indirect impact).
- Increased local and regional economic activity through demand for construction materials, civil works, transport, plant hire, accommodation, catering, security and professional services during the construction phase (indirect impact).
- Contribution to local, regional and national energy security and associated socio-economic development during the operational phase (indirect cumulative impact).

The construction of Phase 2 could support approximately 11,800 person-years of employment in the local and wider economy, comprising of direct, indirect and induced employment. Over an anticipated 30-month construction period, this is equivalent to approximately 4,700 full-time-

equivalent jobs. These figures represent employment supported over the construction and associated supply-chain period and should not be interpreted as the number of individual workers employed on the project site.

During the operational phase, the proposed Energy Facility is expected to support approximately 40 – 60 permanent / long-term employment opportunities. These are likely to include plant management and administration, control-room and energy-dispatch operators, electrical engineers and technicians, solar PV and BESS maintenance personnel, substation and grid-connection personnel, health and safety staff, security personnel, vegetation-management workers and community-liaison and administrative personnel.

Empowerment impacts: The developer will be required to implement appropriate local employment, procurement and skills-development measures to maximise the participation of surrounding communities. The associated impact includes:

- Skills development and transfer, particularly in construction, electrical installation, solar PV, maintenance, health and safety, security and related services during the construction phase (indirect impact).

Skills development is particularly important because relatively low levels of post-school education and technical training may limit the ability of local workers to access some of the semi-skilled and skilled employment opportunities created by the project. Training and work experience obtained during construction could improve the longer-term employability and socio-economic mobility of participating workers.

Public health and safety impacts: Construction will involve the transportation of workers,

equipment, construction materials, PV components, battery units and other infrastructure. Much of this traffic is expected to use the N11 National Road and local access routes. Construction sites of this scale may also attract theft, intimidation, extortion and other forms of organised criminal activity. The associated impacts include:

- Increased risk of vehicle- and pedestrian-related accidents due to additional construction traffic on the N11 and local access routes (indirect impact).
- Increased theft, intimidation, extortion and other criminal activity in the vicinity of the development during the construction phase (direct and indirect impact).

The traffic-related impact is assessed as negative and of low significance before mitigation, declining to very low significance if appropriate traffic-management and road-safety measures are implemented. The potential impact of construction-related criminal activity is assessed as negative and of medium significance before mitigation but could decline to very low significance through effective site security, transparent recruitment and procurement, stakeholder engagement, coordination with law-enforcement agencies and appropriate reporting mechanisms.

Institutional impacts: Phase 2 is hosted by the Mogalakwena Local Municipality. The development is therefore expected to contribute to municipal income through property rates, service charges and other applicable municipal fees. The associated impacts include:

- Increased municipal revenue through property rates, service charges, development contributions and related charges during the operational phase (indirect impact).

Although the actual revenue will depend on the municipal valuation, property classification, services used and applicable tariffs, the proposed development is expected to strengthen the municipal rates

base and generate recurring revenue over its operational life.

Community and land-use considerations: The Bohwa Bja Rena Communal Property Trust have indicated its approval of the proposed Energy Facility. This approval demonstrates local institutional support and strengthens the socio-economic desirability of the development. However, this approval should not replace ongoing consultation with affected households, land users and other interested and affected parties. Regular communication will be required regarding land access, construction activities, employment and procurement, traffic, environmental management, community health and safety, grievances, operational changes and eventual decommissioning.

The proposed Energy Facility is expected to operate for approximately 25 years. Thereafter, the facility may either be refurbished for continued operation or decommissioned. Decommissioning would create temporary employment and demand for services similar to, but less than, those associated with construction. Refurbishment would extend the employment, energy-security and municipal-revenue benefits associated with the operational phase.

Phase 2 of the proposed Energy Facility demonstrates strong alignment with relevant national, provincial and municipal policy and planning frameworks. These include the Electricity Regulation Act, national renewable-energy and energy-security policies, the Limpopo Development Plan, the Limpopo Spatial Development Framework, the Polokwane and Mogalakwena municipal Integrated Development Plans and the development principles of the Spatial Planning and Land Use Management Act. In particular, the proposed development supports objectives relating to renewable-energy generation, energy security, private-sector investment, employment creation, economic development and sustainable infrastructure.

Phase 2 of the proposed Energy Facility is therefore considered socio-economically acceptable. Its

positive impacts – particularly employment creation, skills development, increased demand for goods and services, contributions to economic activity, municipal revenue and improved energy security – are likely to outweigh the identified negative impacts. This acceptability is conditional upon the effective implementation of mitigation measures, transparent local recruitment and procurement processes, appropriate traffic and security management, and continuous consultation with the Communal Property Trust, affected households, land users and surrounding communities throughout the project lifecycle.

1. INTRODUCTION AND STRUCTURE OF THE REPORT

The BBR Energy Facility (Phase 2) is proposed for development in the Mogalakwena Local Municipality (Waterberg District) of the Limpopo Province.[1] This report presents the results of the Socio-Economic Impact Assessment (SEIA) of the proposed development. The purpose of the SEIA is to:

- Assess the potential impacts of the proposed development on the relevant socio-economic environment.
- Recommend mitigation measures where applicable.
- Provide an informed impact statement regarding the (socio-economic) environmental acceptability of the proposed development.

The format of this SEIA report is aligned with the Guideline for Involving Social Assessment Specialists in the EIA Process (Barbour, 2007), as well as Appendix 6 of the Environmental Impact Assessment Regulations (2017), which outlines the requirements for specialist reports. Accordingly, the introductory sections present the location and description of the proposed development, together with an overview of the scope of the SEIA and the methodology applied. This is followed by the findings of the investigative process, which are structured according to the key life-cycle phases of the proposed Energy Facility, namely the construction, operational, and decommissioning phases.

[1] In this report, the proposed development of the BBR Energy Facility will be referred to as the *'proposed Energy Facility', 'the Energy Facility'* or simply, as *'the proposed development'*.

2. PROJECT PARTICULARS

2.1 Location and description

The location of the proposed Energy Facility in a broader regional context is shown in Figure 1. The setting of the proposed development can best be described as rural. The site is about 46km west of the city of Polokwane, 28km north-north-east of Mokopane, and approximately 10km north-east of the Mogalakwena Platinum Mine.

The proposed Energy Facility is a hybrid renewable-energy development consisting of a utility-scale solar photovoltaic (PV) plant integrated with a Battery Energy Storage System (BESS). The site of the proposed development covers approximately 300 ha. The facility will have a maximum solar PV capacity of 200 MWAC and a BESS capacity of up to 150 MW/600 MWh. It aims to provide dispatchable renewable energy, strengthen grid reliability and contribute to South Africa's transition towards a low-carbon energy mix.

The Energy Facility will connect to the Eskom Borutho substation via 132KV transmission line. The site of the proposed development is situated on communal land on the farm Gilimberg No. 861, LR, under the administration of Bohwa Bja Rena Communal Property Trust (Figure 2).

The Energy Facility has the following key components:

- Ground-mounted mono or bifacial solar PV modules installed on single-axis tracking systems. designed to generate clean electricity using PV technology.
- A battery storage system.
- Inverters / Transformer stations.
- On-site substation and switching substation.
- Operations and maintenance building.

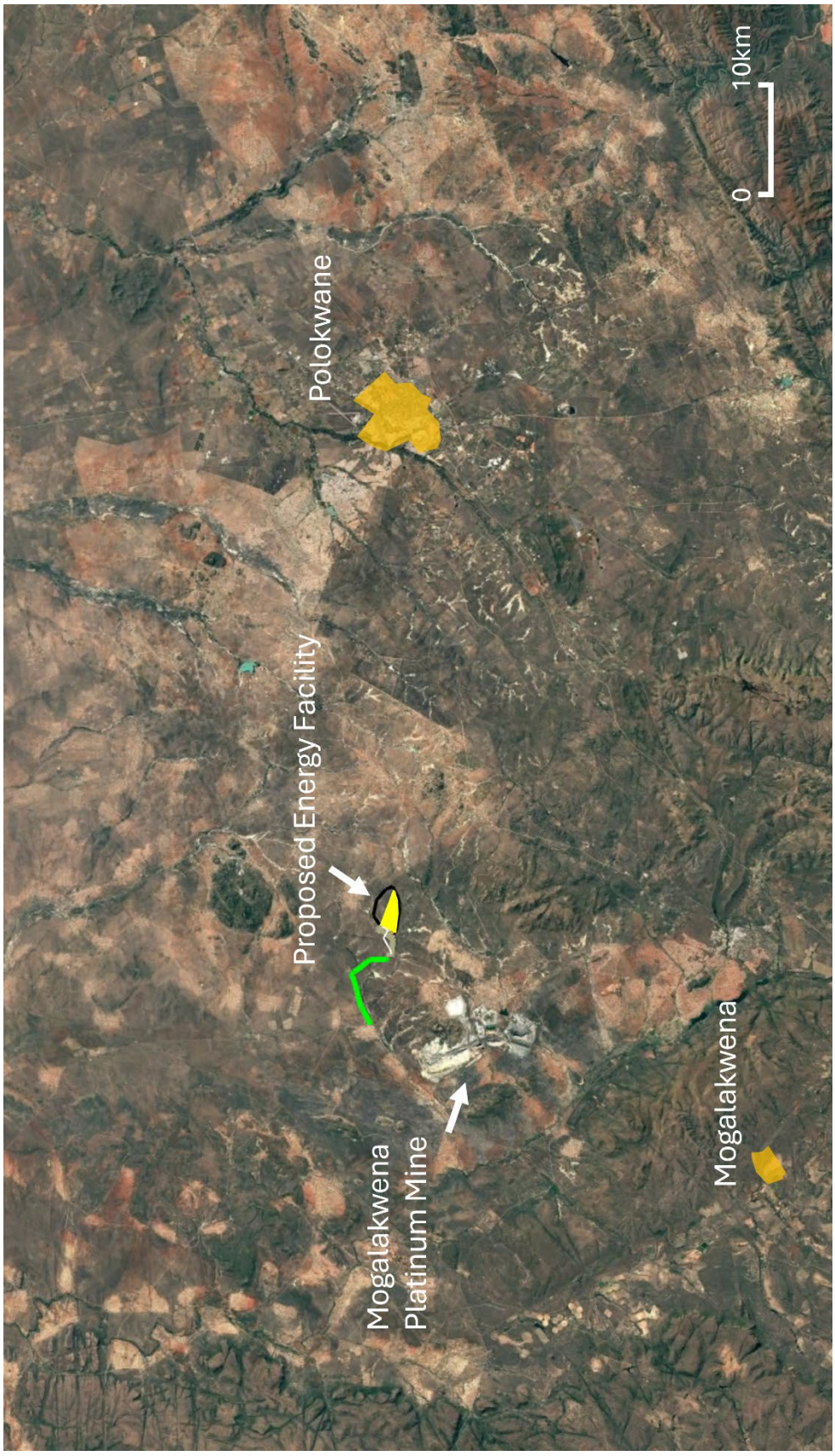


Figure 1: The proposed development in broader context

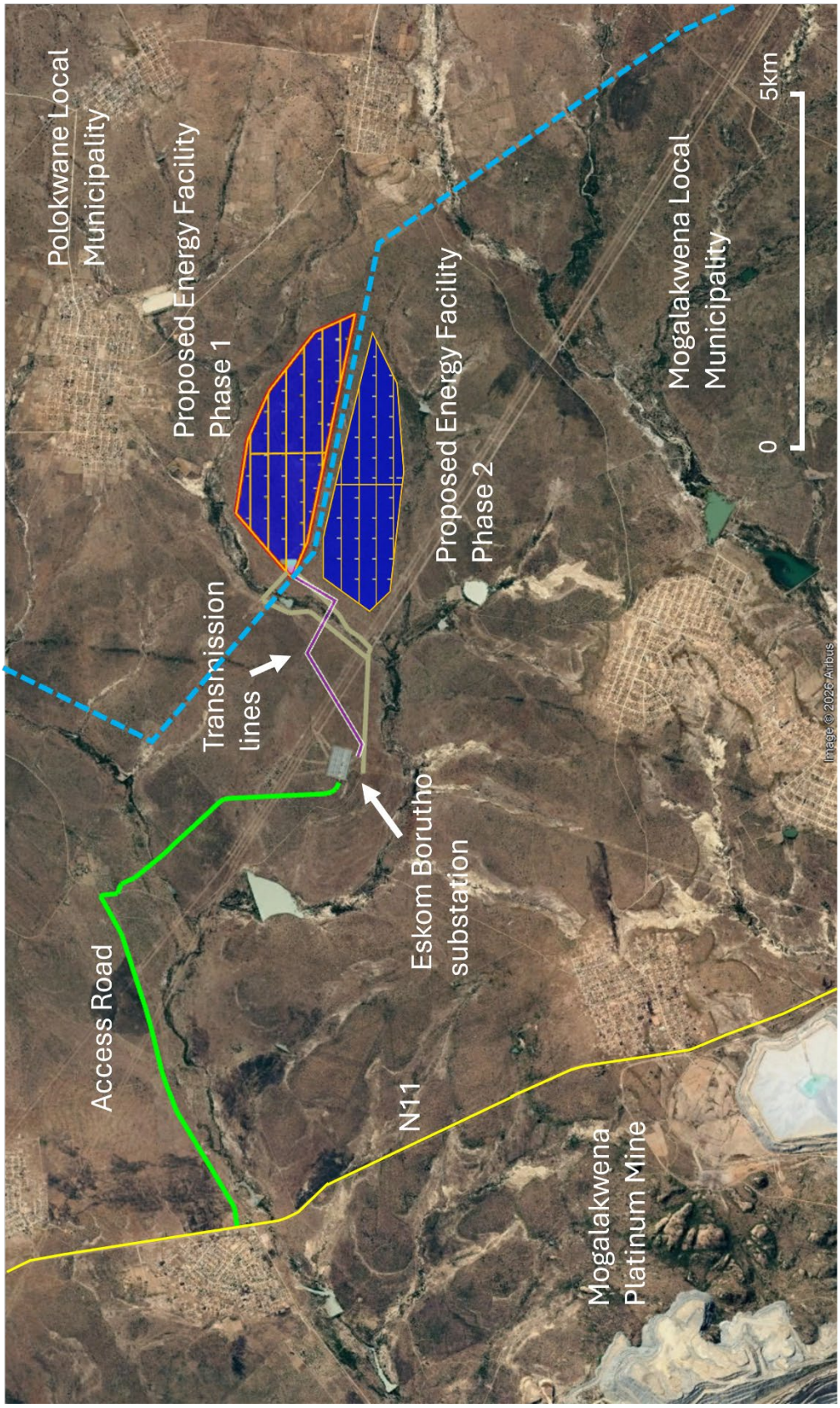


Figure 2: The proposed development in its immediate environment

- Access roads.
- Temporary laydown areas.
- Grid connection infrastructure for a 132 kV transmission line to the Eskom Borutho substation.

2.2 Legal, regulatory, and policy framework

Projects such as the proposed Energy Facility in South Africa take place within a well-defined legal, regulatory, and policy framework. This framework encompasses various environmental, land use, socio-economic development, and sector-specific laws and policies, ensuring that a proposed development, in view of its socio-economic impacts, aligns with national priorities for social sustainability, social justice, and socio-economic development.[2] Since the Energy Facility comprises a large solar photovoltaic facility, a battery energy storage system and associated electrical infrastructure, and because of its location on communal land within the Polokwane and Mogalakwena local municipal areas, the project is subject to the following key national, provincial and municipal requirements: [3]

- The Constitution of the Republic of South Africa 1996 (Section 24 of the Bill of Rights)
- National Environmental Management Act (NEMA) 107 of 1998 and the EIA Regulations
- Interim Protection of Informal Land Rights Act (IPILRA) 31 of 1996
- The Spatial Planning and Land Use Management Act (SPLUMA) 16 of 2013

[2] The information in this section is based on the following sources: Barnard *et al.* (2006), Currie & de Waal (2013), DTIC (2018), National Planning Commission (2024), RSA (1996, 2006, 2008, 2022, 2024a), Department of Electricity and Energy (2025), The Presidency (2022a, 2022b), Presidential Climate Commission (2022), Department of Electricity and Energy and Department of Trade, Industry and Competition (2025).

[3] Other relevant laws include the Employment Equity Act 55 of 1998, the Skills Development Act of 1998, the Occupational Health and Safety Act 85 of 1993, and the Promotion of Access to Information Act 2 of 2000. These laws, however, primarily apply to the organisational level.

- The Municipal Systems Act 32 of 2000
- Spatial Development Frameworks (SDFs)
- Integrated Development Plans (IDPs)
- Electricity Regulation Act 4 of 2006
- Electricity Regulation Amendment Act 38 of 2024
- National Energy Act 34 of 2008
- Integrated Resource Plan for Electricity (2019)
- Energy Action Plan (2022)
- Just Energy Transition Framework (2022)
- Just Energy Transition Investment Plan (2023 – 2027)
- South African Renewable Energy Masterplan

At the broadest level is **The Constitution of the Republic of South Africa 1996**, in particular Section 24 of the Bill of Rights, which deals with the Environmental Rights of all South Africans. Section 24 states that:

Everyone has the right –

a) to an environment that is not harmful to their health or wellbeing; and
b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that –

i. prevent pollution and ecological degradation;
ii. promote conservation; and
iii. secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

The following implications of Section 24 are particularly relevant:

- Subsection 24(a) and the emphasis on human health and well-being.
- Subsection 24(b) and the emphasis on environmental protection and intergenerational equity.
- Subsection 24(b)(iii) and the emphasis on justifiable economic and social development.

The **National Environmental Management Act (NEMA) 107 of 1998** is the key umbrella legislation of its kind in South Africa, which provides for Integrated Environmental Management, including socio-economic impacts, as part of Environmental Impact Assessments (EIAs). The broad scope of NEMA promotes sustainable development and revolve, among others, around the promotion of:

- Social equity and justice.
- Human well-being and dignity.
- Equitable access to resources.
- Empowerment of vulnerable and disadvantaged communities.

The **Interim Protection of Informal Land Rights Act (IPILRA) 31 of 1996** aims to protect people holding informal or customary land rights from being deprived of those rights without their informed consent or a lawful expropriation process.

The **Spatial Planning and Land Use Management Act (SPLUMA) 16 of 2013** governs how land is used, developed, and allocated. This directly affect people's wellbeing, their livelihoods, and access to essential goods and services. The relevance of SPLUMA lies in the following key aspects:

- The aim of SPLUMA is to redress apartheid-era spatial planning, which excluded disadvantaged communities from well-located land and economic opportunities, by ensuring that

development projects benefit historically marginalised groups.

- SPLUMA sets out the following development principles that guide all land use decisions. These principles ensure that land development considers social equity, accessibility, and fairness, improving the wellbeing of vulnerable groups:

    - Spatial justice – prioritising the needs of disadvantaged communities in land use decisions.
    - Spatial sustainability – balancing environmental, economic, and social needs.
    - Efficiency – ensuring that land use promotes social and economic efficiency, including access to social facilities and infrastructure.
    - Good governance – ensuring public participation and accountability in planning processes.
    - Spatial resilience – ensuring adequate response to environmental risks and shocks.

SPLUMA requires all municipalities to prepare Spatial Development Frameworks (SDFs)[4] that align with their IDPs. The latter in turn are required by the **Municipal Systems Act 32 of 2000**, which provides the framework for municipal planning and service delivery.

SDFs and IDPs are essential municipal planning tools, but they differ in terms of purpose and levels of detail. Through spatial planning and land use management, an SDF provides a long-term spatial vision for how land should be used and developed, whereas an IDP, through integrated socio-economic development, provides a medium-term strategic plan for all aspects of municipal development (social, economic, and environmental), as well as service delivery. The SDF in essence is a spatial component of the IDP. It gives spatial expression to the development priorities and objectives identified in the IDP.

[4] Municipal and Provincial SDFs are in turn directed by the National Spatial Development Framework, as required by SPLUMA.

The **Electricity Regulation Act 4 of 2006**, as amended by the **Electricity Regulation Amendment Act 38 of 2024**, provides the principal regulatory framework for electricity generation, transmission, distribution, trading and reticulation. Among others, it promotes the following:

- Efficient, effective, sustainable and orderly development and operation of electricity-supply infrastructure.
- The introduction of additional generation capacity.
- Energy security.
- Diverse energy sources and energy efficiency.

The **National Energy Act 34 of 2008** establishes the broader legal framework for national energy planning. Its objectives include uninterrupted energy supply, diversification of energy sources, affordable energy, environmental protection and increased use of renewable energy.

The I**ntegrated Resource Plan for Electricity (2019)** is South Africa's long-term plan for meeting national electricity demand up to 2030. Its essence is to guide the timing and composition of new electricity-generation capacity so that the country maintains a reliable, affordable and progressively lower-carbon electricity supply.

The **Energy Action Plan (2022)** aims to address South Africa's electricity-supply deficit and reduce load shedding. Its main interventions among others include accelerating private investment in generation, expanding renewable energy and increasing transmission capacity.

The **Just Energy Transition Investment Plan (2023 – 2027)** identifies investment priorities for electricity-sector decarbonisation, grid expansion, skills development and economic diversification. It seeks to ensure that the transition creates employment and economic opportunities while

protecting vulnerable workers and communities.

The **South African Renewable Energy Masterplan** promotes the development of domestic renewable-energy and battery-storage value chains. It focuses on local manufacturing, employment, industrial development, skills and transformation.

2.3 Need and desirability

Need and desirability, in the context of impact assessment, are evaluated against the backdrop of broader societal needs and spatial realities. The **need** for a project is assessed in terms of **time**, considering its temporal relevance, while **desirability** is assessed in terms of **place**, considering site-specific and contextual factors. In other words, the appropriateness of the **timing** of a proposed land use reflects the project's need, whereas the **suitability** of its location reflects its desirability (Department of Environmental Affairs, 2017). The following notes can be made concerning the need and desirability of the proposed development:

The **need** for the proposed Energy Facility is underscored by the following key factors:

- The need for economic development and the creation of employment opportunities in South Africa, locally and regionally, as well as the subsequent alleviation of critical levels of poverty and inequality (See Section 4).

- The need to supplement South Africa’s existing electricity supply with additional renewable generation capacity. By combining solar PV generation with battery energy storage, the proposed Energy Facility will provide more sustainable electricity and improve the availability of power when solar generation is low or demand is high. The project will help diversify the national energy

mix, reduce dependence on coal-fired generation, strengthen energy security and support the transition towards a more reliable and lower-carbon electricity system. Improved electricity availability will also support economic activity, investment and employment.

The need for the proposed Energy Facility is light of the last-mentioned points well aligned to the Integrated Resource Plan for Electricity (2019), the Energy Action Plan (2022), the Just Energy Transition Investment Plan (2023 – 2027), and the South African Renewable Energy Masterplan.

The **desirability** of the proposed Energy Facility would be a factor of the suitability of the proposed location (See Figure 1 and 2) and can be assessed with reference to local and regional planning instruments and documents, including SDFs, IDPs, and of course, SPLUMA. The reason is that these documents incorporate specific socio-economic objectives and emphasise the need to promote the social well-being, health, safety and security of communities, especially previously disadvantaged and vulnerable communities (SRK, 2022).

- The proposed Energy Facility is strongly aligned with the Limpopo Development Plan (2025), which, as in the case of the last-mentioned SDF, prioritises renewable energy, private-sector investment, energy security and employment creation.

- The proposed Energy Facility directly supports the objectives of the Mogalakwena Local Municipality' IDPs relating to the expansion of renewable energy, improved electricity reliability and the attraction of private investment. The facility's positive impacts on construction employment, local procurement, municipal revenue and long-term economic activity further support the local economic-development objectives of this IDP (Mogalakwena Local Municipality, 2025).

- The proposed Energy Facility is strongly aligned with the development principles of SPLUMA. It supports spatial sustainability by producing renewable energy, spatial resilience by diversifying electricity supply and improving grid reliability through battery storage, and spatial efficiency by directing private investment towards strategic energy infrastructure. The proposed development could also advance spatial justice through local employment, procurement, community benefits and development on communally administered land.

- The Bohwa Bja Rena Communal Property Trust, a public benefit organisation that serves communities adjacent to Anglo American Platinum's Mogalakwena Platinum Mine in Limpopo, approves of the proposed Energy Facility (See Addendum C). This strengthens the desirability of the proposed development because the site of the latter is situated on communal land under administration of this community-based entity. This approval indicates local institutional support (See Department of Traditional Affairs, 2025; RSA, 2026). It may also reduce the potential for land-use conflict and facilitate cooperation during project implementation.

2.4 Alternatives

For most proposed developments, a range of alternative options can be identified and considered. These typically include alternatives related to location, the type of activity, design or layout, technology, and/or operational aspects. Finally, the so-called No-Go alternative is also applicable. This involves the option of not undertaking the proposed development or any of its alternatives.

For the proposed Energy Facility, only the No-Go alternative can be considered at this stage, due to the unavailability of sufficient information on other alternatives.

3. SEIA SCOPE AND METHODOLOGY

This SEIA report includes the following components, which are widely recognised as best practice for the study, assessment, and reporting of socio-economic impacts (see Barbour, 2007; Vanclay et al., 2015; EIA Regulations, 2017; Vanclay & Esteves, 2024):

- A baseline account of the affected socio-economic environment, involving qualitative and quantitative descriptive elements, to comprehend and contextualise relevant issues and impacts.
- The identification and assessment of the (direct / indirect) socio-economic impacts of the proposed development in its construction, operational, and decommissioning phases.[5]
- Recommendations regarding the mitigation of the identified socio-economic impacts (where applicable).
- Other applicable aspects that are required by the relevant South African regulation – *'Appendix 6 of the EIA Regulation'* (EIA Regulations, 2017).

The study approach of the SEIA appears at the end of this report in **Addendum A**. This includes the methodological foundation that informed the SEIA, as well as the research process that was followed to identify and assess potential socio-economic impacts (See *'The SEIA research process: proposed development of an Energy Facility in the Mogalakwena Local Municipality'* on p.61).

[5] *"Direct socio-economic impacts occur at the same time and in the same space as the proposed development. Indirect socio-economic impacts can occur later in time, or at a different place, from the causal activity, or as a result of a complex pathway"* (Barbour, 2007:39, Box 5).

4. DESCRIPTION OF THE AFFECTED SOCIO-ECONOMIC ENVIRONMENT

The proposed Energy Facility site straddles the boundary between two local municipalities in Limpopo Province: Polokwane Local Municipality within the Capricorn District to the east, and Mogalakwena Local Municipality within the Waterberg District to the west. The district boundary divides the site almost equally, with Phase 1 located in Polokwane Local Municipality and Phase 2 in Mogalakwena Local Municipality. Both local municipalities therefore form part of the affected socio-economic environment and will not be treated separately. Relevant attributes of the local municipalities will be outlined below, starting with the Polokwane Local Municipality.[6]

The **Polokwane Local Municipality** is situated in the Capricorn District of the Limpopo Province. This municipality is also home to the city of Polokwane, the administrative and economic capital of this province. The Polokwane Local Municipality is approximately 65% rural in physical extent and is organised into seven settlement clusters. One of the clusters is Aganang, about 45km west of Polokwane. Agenang has a dispersed rural settlement pattern, limited infrastructure and has substantial areas under traditional administration. Aganang also includes the Mashashane Traditional Authority area, which contains the site of the proposed Energy Facility on communal land administered by the Mashashane Traditional Council (Capricorn District Municipality, 2026).

The Polokwane Local Municipality has a population of almost 844,000 people. Due to rural-urban migration, the city of Polokwane is Limpopo's fastest-growing population centre. The population of the municipality is young and almost 57% is younger than 34, with 30% younger than 15 (Municipalities of South Africa, 2026a).

[6] Only one impact of the proposed Energy Facility is municipality-specific, *i.e.* contribution to GDP and economic development, because GDP is reported in the context of a spatial unit, such as a municipality (Section 5.2.1B).

The economy of Polokwane Local Municipality is dominated by the city of Polokwane. As the provincial capital, the city of Polokwane accounts for the largest share of government and community services, finance, trade and other business services in the Polokwane Local Municipality. The health of the economy of the municipality is concerning. Real economic growth in the Polokwane Local Municipality – Gross Domestic Product (GDP) growth in other words – has generally been modest and uneven. On average, the GDP of the municipality grew between 2014 and 2024 by only 1.1%, the highest rate of all municipalities in the Limpopo Province. The GDP of the municipality is estimated to grow at approximately 2.3% per year between up to 2029. This however depends on national economic conditions, infrastructure availability, investment and energy security (City of Polokwane, 2026).

The GDP growth rate of the Polokwane Local Municipality is reflected by its unemployment rates: unemployment stands at almost 21%, with the youth unemployment rate unavailable, but noted as problematic, nevertheless. Following the unemployment rate of the Polokwane Local Municipality are the serious problems of poverty and inequality. Almost 58% of residents in this municipality live below the upper-bound poverty line.[7] Income inequality here is estimated at a Gini-coefficient of almost 0.60, which is substantial (Municipalities of South Africa, 2026a).[8]

Other socio-economic indicators that are closely associated with unemployment, poverty and inequality, such as educational attainment, naturally follow. On average, educational attainment in the Polokwane Local Municipality has improved over the last decade, but this average hides the substantial spatial inequalities between urban and rural areas in the municipality. Rural settlements

[7] The threshold below which people cannot afford the minimum lifestyle and essential non-food items (such as clothing, shelter, and transport) that most South Africans consider necessary.

[8] The Gini-coefficient measures inequality on a scale from 0.0 to 1.0, with higher values indicating higher levels of inequality.

in the Polokwane Local Municipality have much higher levels of adults with no schooling and considerably lower matric and higher-education attainment than the city of Polokwane (City of Polokwane, 2026).

The **Mogalakwena Local Municipality** is situated in the Waterberg District of the Limpopo Province. The town of Mokopane is the most important urban area of the municipality. Beyond Mokopane, the municipality is predominantly rural with numerous small, dispersed villages on communally administered land distributed throughout (Waterberg District Municipality, 2026).

The Mogalakwena Local Municipality has a population of 378,198 people, approximately 49% of the Waterberg District population. The population is relatively young with one-third younger than 15 (Municipalities of South Africa, 2026b).

The Mogalakwena Local Municipality has a service- and resource-based economy. GDP growth rates are not available,[9] but what is known about the economy in this case is that it is highly concentrated into only a few sectors: Government Services (20%), Wholesale and Retail Trade (19%), Business Services (16%), and Mining and Quarrying (9.5%). Limited diversification and over-reliance mean that the economy of the Mogalakwena Local Municipality can be described as vulnerable. This state of affairs is responsible for the very high unemployment rate of slightly more than 40% and the even higher youth unemployment rate of more than 50%. With unemployment figures such as these, poverty is recognised as a significant social problem in the Mogalakwena Local Municipality, while a Gini-coefficient of slightly more than 0.60 is not surprising (Cole, 2023; Mogalakwena Local Municipality, 2025).

[9] It can safely be assumed that the Mogalakwena Local Municipality's GDP and economic growth rate are lower than those of Polokwane Local Municipality.

Poverty and inequality in the Mogalakwena Local Municipality naturally impacts educational attainment. Although the proportion of adults without formal schooling has declined over the past decade, educational attainment remains a significant problem in the municipality. Only about one-third of adults has completed Grade 12, while less than 10% had obtained a post-school qualification (Mogalakwena Local Municipality, 2025).

In summary, both Polokwane and Mogalakwena Local Municipalities are characterised by a dominant urban centre (the city of Polokwane and the town of Mokopane respectively) surrounded by extensive rural areas with dispersed settlements on communally administered land. Their populations are relatively young, while their economies are concentrated in a limited number of service-related sectors and remain vulnerable. Both municipalities experience substantial unemployment, poverty and income inequality, although these problems are considerably more severe in the Mogalakwena Local Municipality. Educational attainment has improved in both municipalities, but remains relatively low, particularly in rural settlements.

Energy security is widely regarded as a critical prerequisite for socio-economic development, something that both Polokwane and Mogalakwena Local Municipalities are clear about in view of their critical levels of unemployment, poverty and income inequality. However, the contemporary spike in the energy crisis (energy insecurity) in South Africa the form of electricity blackouts (load shedding), threatens to entrench exceptionally low economic growth levels everywhere in the country, including the Polokwane and Mogalakwena Local Municipalities. This is subsequently destined to drive poverty, unemployment and inequality relentlessly higher (Business Report, 2025).[10] As a result, the Polokwane Local Municipality on the one hand warns that the municipality will be unable to sustain future developments unless additional electricity capacity is created. The

[10] The South African economy loses between R1bn and R6bn per day in terms of Gross Domestic Product (GDP) because of load shedding. Job losses and poverty inevitably follow this situation.

Mogalakwena Local Municipality similarly regards reliable electricity as essential to service delivery and local economic development and identifies load shedding and inadequate capacity as threats to socio-economic development.

To conclude, the sections above provided a concise reflection of the affected socio-economic environment against which the socio-economic impacts of the proposed Energy Facility can be identified and assessed. Relevant attributes of the affected socio-economic environment should be seen in the context of sensitive receptors. A sensitive receptor is an attribute(s) of the affected socio-economic environment which leads to a heightened sensitivity to change (positive and/or negative) in that environment (EPA, n.d.). Sensitive receptors contextualise socio-economic impacts, ensuring that identified impacts are meaningful rather than trivial or arbitrarily defined.

Significant sensitive receptors in the affected socio-economic environment include unemployed and poor households, especially but not exclusively in the rural settlements, as well as poor educational attainment. Other important sensitive receptors are limited access to economic opportunities, underperforming local economies that reinforce vulnerability and inequality, and inadequate energy security. Collectively, these receptors reflect the socio-economic context within which the proposed Energy Facility will be developed.

5. SOCIO-ECONOMIC IMPACT ASSESMENT

Section 5.1 provides an overview of the relevant socio-economic impact categories associated with the proposed Energy Facility. This is followed by the presentation and assessment of the identified socio-economic impacts during the construction phase of the proposed development (Section 5.2), the operational phase (Section 5.3), and, finally, the decommissioning phase (Section 5.4).

5.1 Socio-economic impact categories associated with the proposed development

Following the completion of the research process (See Addendum A5), the results were analysed in relation to the full spectrum of the potential socio-economic change processes and impact categories in Addendum A3 and A4. The following socio-economic impact categories – and their associated impacts – emerged during the course of the research:

A. Economic Impacts: A project such as the proposed Energy Facility is expected to stimulate local economic activity, generate employment opportunities, and produce a range of secondary effects through relevant economic multipliers and knock-on effects. The associated impacts include:

- Creation of employment opportunities during the construction and operational phases (direct / indirect impacts).
- Contribution to local GDP and economic development through capital expenditure during the construction phase (indirect impact).
- Contribution to increased economic activity via the demand for local and/or regional goods and services during the construction phase (indirect impact).
- Contribution to energy security and contemporary socio-economic development during the Operational Phase (cumulative impact).

B. Empowerment impacts: The developer will be required to undertake an economic empowerment process to ensure the utilisation of local labour for the proposed development. The related impact includes:

- Skills development and transfer, particularly in the local and regional Construction Sector,

during the construction phase (indirect impact).

C. **Public health and safety impacts:** The construction of the proposed Energy Facility will involve the movement of relevant heavy vehicular traffic and the daily transport of workers. During this time, the proposed development is also likely to have crime-related impacts on its immediate receiving environment. Related impacts include:

   - Public health and safety impacts during the construction phase, due to increased construction related vehicular traffic (indirect impact).
   - Increased criminal activity during the construction phase (direct / indirect impact).

D. **Institutional impacts:** The Mogalakwena Local Municipality will host Phase 2 of the proposed Energy Facility which will contribute to municipal income through rates and taxes. The related impact includes:

   - Increase in municipal income through additional rates and taxes during the operational phase (indirect impact).

5.2 SOCIO-ECONOMIC IMPACTS DURING THE CONSTRUCTION PHASE

5.2.1 Economic impacts

Economic impacts result from employment creation, changes in business activity, livelihoods, economic attributes, etc.

A) Employment creation – impact identification and assessment

Impact identification:

The construction of Phase 2 of the proposed Energy Facility will involve the establishment of a utility-scale solar photovoltaic plant and associated BESS. Construction activities will include site preparation, internal access roads, foundations, the installation of solar PV panels and supporting structures, electrical cabling, inverters, transformers, battery units, substations and grid-connection infrastructure. Temporary construction facilities, laydown areas and worker amenities will also be required (See Section 2.1). The proposed Energy Facility is therefore a cost intensive project with a capital expenditure estimated at approximately R7.1bn.[11] For this reason, the construction phase of the proposed development could support approximately 11,800 person-years of employment in the local and South African economy. This comprises approximately 6,340 direct, 1,580 indirect and

[11] The estimated capital cost was calculated by applying published utility-scale solar PV and BESS unit-cost benchmarks to the proposed generation and storage capacities, supplemented by indicative allowances for grid-connection infrastructure, roads, buildings, professional services and other site requirements. A contingency of approximately 10% of direct installed costs was added. The estimate is expressed in 2026 prices, excludes VAT and represents a preliminary order-of-magnitude estimate rather than a contractor-priced bill of quantities. See Addendum B for the basic cost estimates.

3,920 induced person-years,[12] some most presumably in the semi-skilled category.[13] These figures represent employment supported over the construction and relevant supply-chain period of the proposed Energy Facility and not the total number of actual jobs. A person-year is the equivalent of one person working full-time for one year, or two persons working fulltime for six months each, *etc*. The estimated 11,840 person-years for Phase 2 in total translates into about 4,736 full-time-equivalent jobs per year if the construction phase lasts for two-and-a-half years (30 months).

The creation of employment opportunities (direct, indirect and induced) is likely to have a considerable socio-economic impact in the form of increased economic activity, poverty alleviation and favourable socio-economic implications (such as improved access to and consumption of goods and services, greater freedom of choice, better quality of life, and so on) for the affected individuals and their dependants.

In the context of the Polokwane and Mogalakwena Local Municipalities, where unemployment, poverty and inequality pose serious challenges for those at the lower end of the socio-economic spectrum, employment creation is a significant impact. It is also something that is strategically prioritised at a regional level by both local municipalities and their respective districts (Section 2.3).

[12] Whereas a direct job is something that is directly related to the construction of a project for example, indirect jobs are created due to the provision of goods and services by suppliers and distributers to the on-site construction activities. Induced jobs lastly result from the spending and consumption by direct and indirect workers (IFC, 2013).

[13] The number of direct, indirect and induced person years is estimated using the Average Sectoral Employment Multipliers of the Industrial Development Corporation (IDC, 2024). Thirteen different multipliers were applied, each corresponding to a relevant component and/or activity associated with the construction phase.

Impact assessment and significance rating:

Existing impact: High unemployment and poverty levels in local communities.

Project impact: Individuals and dependents benefit from the income generated by employed persons due to employment creation during the construction phase of the proposed development.

Impact type:	Existing impact (baseline)	Project impact (direct / indirect)	
		Unmitigated	Mitigated
Intensity:	Major	Major	NA
Duration:	Long term	Short term	NA
Extent:	Local	Local	NA
Consequence:	High	Medium	NA
Probability:	Certain	Certain	NA
Frequency:	Always	Always	NA
Impact status:	Negative	Positive	NA
Impact significance:	Negative high	Positive medium	NA

Assessment risks:

Likelihood of mitigation measures being implemented successfully:	NA
Degree to which impacts can be avoided, managed, or mitigated:	NA
Degree to which impacts can be reversed:	NA
Degree to which impacts could cause irreplaceable loss of resources:	NA
Stakeholder interest:	Positive high
Assessment confidence:	High
Degree to which assessment supports decision-making:	Adequate for decision-making
Gaps and limitations:	Some, but with no effect on the assessment.
Recommendations:	NA

B) Contribution to the GDP and economic development of the Mogalakwena Local Municipality – impact identification and assessment

Impact identification:

GDP is an important indicator of a region's economic and socio-economic conditions and therefore receives particular attention in local planning instruments such as IDPs and the Limpopo Development Plan (Limpopo Provincial Government, 2025). GDP represents the market value of all final goods and services produced in a particular area over a specified period and provides a measure of the scale and composition of its economy. Municipal GDP and its growth can therefore reflect the capacity of a municipality to generate and sustain economic activity, employment and development. Any contribution to local GDP consequently has clear socio-economic significance.

The modest economic growth of the Mogalakwena Local Municipality was noted in Section 4. Since the development of the proposed Energy Facility is capital-intensive, its contribution to GDP is noteworthy.

Impact assessment and significance rating:

Existing impact: Local GDP currently grows at a modest rate.

Project impact: Noteworthy contribution to the GDP of the Mogalakwena Local Municipality, leading to higher levels of local economic activity and related socio-economic benefits.

Impact type:	Existing impact (baseline)	Project impact (indirect)	
		Unmitigated	Mitigated
Intensity:	Major	Major	NA
Duration:	Long term	Short term	NA
Extent:	Local	Local	NA
Consequence:	High	Medium	NA
Probability:	Certain	Certain	NA
Frequency:	Always	Always	NA
Impact status:	Negative	Positive	NA
Impact significance:	Negative high	Positive medium	NA

Assessment risks:

Likelihood of mitigation measures being implemented successfully:	NA
Degree to which impacts can be avoided, managed, or mitigated:	NA
Degree to which impacts can be reversed:	NA
Degree to which impacts could cause irreplaceable loss of resources:	NA
Stakeholder interest:	Positive high
Assessment confidence:	High
Degree to which assessment supports decision-making:	Adequate for decision-making
Gaps and limitations:	NA
Recommendations:	NA

C) Increased demand for local goods and services – impact identification and assessment

Impact identification:

The development of the proposed Energy Facility involves a multi-faceted process that is intensive in its demand for a variety of goods and services. Higher levels of local economic activity normally follow the increased demand for goods and services – and the supply thereof by local businesses – and this in turn is likely to culminate into various socio-economic benefits, such as employment creation and poverty reduction (Beveridge, 2024). The extent of this impact is of course a factor of the size and health of the local economy in question and the subsequent ability of local service providers to meet such demands. It follows that the more limited this ability, the more leakage will take place from the local economy as developers would be compelled to source relevant goods and services elsewhere (DBIS, 2008). Although leakage will inevitably occur, especially as far as specialised components such as solar PV modules, lithium-ion battery cells, inverters, transformers and control systems are concerned, it is predicted that the immediate affected socio-economic environment (Limpopo and Mogalakwena Local Municipalities) will be able to contribute the following goods and services to the construction phase of Phase 2 of the proposed Energy Facility:

- Civil works, earthworks and roads.
- Construction labour and installation services.
- Concrete, aggregate, sand and basic construction materials.
- Transport, plant hire and logistics.
- Security, fencing and site services.
- Accommodation, catering and retail supplies.
- Environmental, engineering and professional services.

Considering the above, the impact remains significant in the context of the positive effect that the demand for goods and services will have on the economy of the Limpopo and Mogalakwena Local Municipalities.

Impact assessment and significance rating:

Existing impact: Modest local economic growth and general performance.

Project impact: Provision of goods and services by local service providers lead to higher levels of local economic activity and related socio-economic benefits.

Impact type:	**Existing impact (baseline)**	**Project impact (indirect)**	
		Unmitigated	**Mitigated**
Intensity:	Major	Major	NA
Duration:	Long term	Short term	NA
Extent:	Local	Local	NA
Consequence:	High	Medium	NA
Probability:	Certain	Certain	NA
Frequency:	Always	Always	NA
Impact status:	Negative	Positive	NA
Impact significance:	Negative high	Positive medium	NA

Assessment risks:

Likelihood of mitigation measures being implemented successfully:	NA
Degree to which impacts can be avoided, managed, or mitigated:	NA
Degree to which impacts can be reversed:	NA
Degree to which impacts could cause irreplaceable loss of resources:	NA
Stakeholder interest:	Positive high
Assessment confidence:	High
Degree to which assessment supports decision-making:	Adequate for decision-making
Gaps and limitations:	NA

5.2.2 Empowerment impacts

Empowerment impacts result from the social or economic empowerment of vulnerable and other groups.

D) Skills development and transfer – impact identification and assessment

Impact identification:

The commitment by developers to recruit local labour, as far as possible, to benefit local communities in general and the unemployed in particular, is almost standard practice in South Africa when construction projects are proposed. Several employment opportunities will subsequently be created, many within the semi-skilled category. This is likely to have a considerable socio-economic impact in the form of poverty alleviation and favourable socio-economic implications (improved access to and consumption of goods and services, greater freedom of choice, better quality of life, and so on) for the affected individuals and their dependants (Section 5.2.1 A). However, one limiting factor that is expected to restrict the prioritisation of local labour during the construction phase of the proposed Energy Facility, is the educational attainment of the prospective labour force, particularly in the case of semi-skilled workers. Low levels of post-school education and/or training is a clear obstacle in this case. Thus, to supply the construction phase of the proposed development with the necessary local labour, the developer will most likely have to engage in a process of skills development and transfer.

In a municipality burdened by poverty and problematic unemployment rates where many of the unemployed may be unemployable without some form of intervention, skills development and transfer are likely to have a substantial socio-economic impact. The benefits would essentially

revolve around the improved socio-economic mobility of people and should extend well beyond the construction phase of the proposed development. Relevant individuals would for example be able to sell their newly acquired skills within and beyond the boundaries of the local economy, long after the completion of the construction phase.

Impact assessment and significance rating:

Existing impact: Many unemployed people may be unemployable due to relatively low levels of post-school education and/or training.

Project impact: Skills development and transfer leading to the empowerment of affected individuals with marketable skills and greater socio-economic mobility.

Impact type:	**Existing impact (baseline)**	**Project impact (indirect)**	
		Unmitigated	**Mitigated**
Intensity:	Major	Major	NA
Duration:	Long term	Long term	NA
Extent:	Local	Local	NA
Consequence:	High	High	NA
Probability:	Certain	Certain	NA
Frequency:	Always	Always	NA
Impact status:	Negative	Positive	NA
Impact significance:	Negative high	Positive high	NA

Assessment risks:

Likelihood of mitigation measures being implemented successfully:	NA
Degree to which impacts can be avoided, managed, or mitigated:	NA
Degree to which impacts can be reversed:	NA
Degree to which impacts could cause irreplaceable loss of resources:	NA
Stakeholder interest:	Positive high
Assessment confidence:	High
Degree to which assessment supports decision-making:	Adequate for decision-making
Gaps and limitations:	NA

5.2.3 Public health and safety impacts

Public health and safety impacts result from changes in community health and safety parameters.

E) Public health and safety impacts due to increased construction related vehicular traffic – impact identification and assessment

Impact identification:

The proposed Energy Facility is certain to generate an increased amount of traffic as far as the daily movement of its workforce is concerned. The transport of workers will of course supplement the other construction related vehicular traffic that is expected to coincide with the proposed development's construction phase. It can be presumed that much of the total traffic volume that will be produced by the proposed development during this stage, will share the only general approach route to the site of the proposed development, *i.e.* the N11 National Road, an important regional transport route used by heavy vehicles, passenger cars, buses and minibus taxis. Pedestrians, people crossing the national road and stray animals present additional road safety risks along this route. The addition of construction-related traffic to this route, may disrupt existing mobility patterns and increase the risk of accidents, particularly at site access points, intersections and locations used by pedestrians.

Impact assessment and significance rating:

Existing impact: Regular mobility patterns on the N11 National Road, as well as pedestrians, people crossing the national road and stray animals.

Project impact: Increase in motor vehicle and pedestrian related accidents due to the addition of construction related traffic.

Impact type:	Existing impact (baseline)	Project impact (indirect)	
		Unmitigated	Mitigated
Intensity:	Minor	Moderate	Minor
Duration:	Long term	Short term	Short term
Extent:	Local	Local	Local
Consequence:	Low	Low	Low
Probability:	Certain	Certain	Possible
Frequency:	Sporadic	Occasional	Sporadic
Impact status:	Negative	Negative	Negative
Impact significance:	Negative very low	Negative low	Negative very low

Assessment risks:

Likelihood of mitigation measures being implemented successfully:	Possible
Degree to which impacts can be avoided, managed, or mitigated:	Can be mitigated
Degree to which impacts can be reversed:	Can be partially reversed
Degree to which impacts could cause irreplaceable loss of resources:	Highly unlikely
Stakeholder interest:	Positive high
Assessment confidence:	High
Degree to which assessment supports decision-making:	Adequate for decision-making
Gaps and limitations:	NA

Mitigation

- Establish an information-sharing link with the Mogalakwena Local Municipality Traffic and Emergency Services Department in Makopane, the closest traffic and emergency services, as well as the SANRAL Limpopo Provincial Office in Polokwane, the agency responsible for the N11 National Road.

- Comply with relevant health and safety regulations, and applicable legislation, including the Occupational Health and Safety Act (85/1993): 2014 Construction Regulations and the 1996 National Road Traffic Act.

F) Public health and safety impacts due to increased criminal activity in the vicinity of the proposed development – impact identification and assessment

Impact identification:

According to the South African Police Service (SAPS), it commonly occurs that construction work is accompanied by an increase in local (site-specific) criminal activity. This dilemma throughout the construction industry is generally linked to factors such as the vulnerability of construction sites, an increase in the presence of strangers and/or employment seekers in the vicinity of such areas, the attractiveness (for criminal elements) of valuable machinery, tools, and materials, and so on (See Lohne *et al.,* 2019 and Infrastructure News, 2024). A relatively new and equally realistic challenge, in addition to the latter, is the growing problem and detrimental effects of organised crime in the case of large construction projects (See HeraldLive, 2024). Generally referred to as the 'extortion economy' and often labelled the 'construction mafia', organised crime in this context typically involves groups known as 'local business forums'. These groups engage in sabotage and/or armed attacks on construction sites; intimidate workers and site officials; and demand money or a share in the construction projects (Inclusive Society Institute, 2023; Cape Chamber of Commerce and Industry, 2024). Consequences are usually severe and include project delays, increased costs, a complete halt of construction at times, unsustainable financial losses, and the creation of a climate of fear among workers and officials (SA News, 2024).

Although construction-related extortion is a recognised risk within the South African Construction

Sector in general, the SAPS has specifically identified Limpopo as one of the provinces affected by violence and extortion at construction sites (RSA, 2024b).

Impact assessment and significance rating:

Existing impact: Crime and community safety is a recognised concern in the Mogalakwena Local Municipality.

Project impact: Organised criminal activity contributes to existing crime levels during the construction phase of the proposed development.

Impact type:	**Existing impact (baseline)**	**Project impact (direct / indirect)**	
		Unmitigated	**Mitigated**
Intensity:	Major	Major	Moderate
Duration:	Long term	Short term	Short term
Extent:	Local	Local	Local
Consequence:	High	Medium	Low
Probability:	Certain	Certain	Possible
Frequency:	Always	Always	Regular
Impact status:	Negative	Negative	Negative
Impact significance:	Negative high	Negative medium	Negative very low

Assessment risks:

Likelihood of mitigation measures being implemented successfully:	Possible
Degree to which impacts can be avoided, managed, or mitigated:	Can be mitigated
Degree to which impacts can be reversed:	Can be partially reversed
Degree to which impacts could cause irreplaceable loss of resources:	Highly unlikely
Stakeholder interest:	Positive high
Assessment confidence:	High
Degree to which assessment supports decision-making:	Adequate for decision-making
Gaps and limitations:	NA

Mitigation

One of the most effective measures to manage criminal activity in the context of the affected environment revolves around the critical issues of awareness and communication (crime intelligence). It is therefore proposed that the Developer / Proponent, SAPS (Limpopo and Mogalakwena Local Municipalities), relevant Community Policing Forums (Limpopo and Mogalakwena Local Municipalities), relevant municipal directorates, and local private security companies, work closely together during the construction phase and that information regarding the following is shared among the relevant Interested and Affected Parties (I&APs):

- Duration of the construction phase of the proposed development.
- The daily movement patterns of construction workers.
- The presence of construction workers and/or other personnel on-site after hours.
- Any other information that is deemed important by I&APs in order to prevent any escalation of criminal activity in the affected environment.

Mitigating the challenge of construction related crime, including organised crime, is complex, because there is no quick solution and a multifaceted, multi-stakeholder approach is likely to deliver the best results. On the one hand, the problem of organised crime demands decisive action from local, provincial, and national public law enforcement agencies and the South African judiciary. While this is largely beyond the proponent's control, several contemporary and practical mitigation recommendations, relevant to the South African context, exist.

Following is a list of measures that should be adopted by the proponent, as far as reasonably possible:[14]

Enhanced on-site security

Purpose is to deter unlawful entry, extortion, and intimidation:

- Engage registered and experienced private security providers (PSIRA-compliant).
- Implement comprehensive site security infrastructure, including controlled access points, perimeter fencing, and CCTV surveillance.
- Conduct regular security audits to adapt to emerging threats.

a) Proactive stakeholder engagement

Purpose is to reduce community-level tensions and pre-empt coercion:

- Initiate early and continuous engagement with local communities and recognised business forums.
- Clearly communicate the project's employment and procurement opportunities, ensuring transparency and fairness.
- Establish a Community Liaison Officer role to facilitate ongoing dialogue and resolution of problems.

[14] The seven components and 16 recommendations were synthesised from the following sources:

- *Inclusive Society Institute* (2023), which underscores the necessity for transparent procurement practices.
- *Webber Wentzel* (2023), which provides prevention strategies against the construction mafia and highlights the need for robust security measures and legal compliance.
- *CDH* (2024), which emphasises the importance of early stakeholder engagement to prevent unlawful disruptions by the construction mafia.
- *Pintent Masons* (2024), which suggests contractual provisions that may offer protection against the construction mafia.

b) **Transparent procurement practices**

Purpose is to eliminate opportunities for extortion through informal demands:

- Ensure all procurement processes follow strict transparency guidelines, including publicly advertised tenders and clearly defined selection criteria.
- Avoid side agreements or undocumented commitments to unauthorised groups.

c) **Coordination with law enforcement**

Purpose is to ensure criminal threats are addressed swiftly and lawfully:

- Engage local and provincial public law enforcement agencies, as well as the private security industry, during the planning and construction phase.
- Report any intimidation or criminal demands to the SAPS.

d) **Risk management planning**

Purpose is to account for potential disruptions:

- Incorporate risk allowances into project budgets and timelines to account for possible crime-related delays.
- Include specific contractual clauses that address site access disruptions, security incidents, and force majeure scenarios involving criminal activity.

e) **Training and reporting mechanisms**

Purpose is to protect workers and support compliance:

- Train all personnel and contractors on protocols for reporting intimidation and understanding their legal rights.
- Provide a confidential, anonymous whistleblowing channel for reporting extortion, threats, or non-compliance.

f) **Social investment and job creation transparency**

- Purpose is to prevent manipulation of local employment expectations:
- Publish and track local hiring and subcontracting commitments.
- Partner with local training institutions to build workforce capacity and create legitimate access to project benefits.

5.3 SOCIO-ECONOMIC IMPACTS DURING THE OPERATIONAL PHASE

5.3.1 Economic impacts

Economic impacts result from employment creation, changes in business activity, livelihoods, economic attributes, etc.

A) Employment creation – impact identification and assessment

Impact identification:

During the operational phase, the proposed Energy Facility is expected to generate a range of permanent or long-term employment opportunities. Compared to similar projects elsewhere, it is expected that the proposed development will create between 40 and 60 jobs during its operational phase. Positions are likely to include the following:

- Plant management and administration 4 - 6
- Control-room, Supervisory Control and Data Acquisition and energy-dispatch operators 6 - 10
- Electrical engineers and technicians 6 - 10
- Solar PV maintenance technicians and electricians 6 - 8
- BESS engineers and technicians 4 - 7

- Substation and grid-connection personnel 3 - 5
- Health, safety and environmental personnel 2 - 4
- Security and access-control personnel 6 - 10
- Cleaning, vegetation management and general maintenance 4 - 7
- Community liaison, procurement and administrative support 2 - 4

Estimated total 40 - 60

Some positions, particularly security, panel cleaning, vegetation management and specialist maintenance, may be supplied through long-term service contracts rather than being directly employed by the project operator. Overall, while the operational phase employment footprint is modest relative to construction, it provides stable, longer-term job opportunities, that may include semi-skilled workers from surrounding communities.

Impact assessment and significance rating:

Existing impact: High local unemployment and poverty levels.

Project impact: Individuals and dependents benefit from the income generated by employed persons due to employment creation during the operational phase of the proposed development.

Impact type:	**Existing impact (baseline)**	**Project impact (indirect)**	
		Unmitigated	**Mitigated**
Intensity:	Major	Major	NA
Duration:	Long term	Long term	NA
Extent:	Local	Local	NA
Consequence:	High	High	NA
Probability:	Certain	Certain	NA
Frequency:	Always	Always	NA
Impact status:	Negative	Positive	NA
Impact significance:	Negative high	Positive high	NA

Assessment risks:

Likelihood of mitigation measures being implemented successfully:	NA
Degree to which impacts can be avoided, managed, or mitigated:	NA
Degree to which impacts can be reversed:	NA
Degree to which impacts could cause irreplaceable loss of resources:	NA
Stakeholder interest:	Positive high
Assessment confidence:	High
Degree to which assessment supports decision-making:	Adequate for decision-making
Gaps and limitations:	Some, but with no effect on the assessment.

B) Contribution to energy security and contemporary socio-economic development

Since 2007, South Africa has experienced an energy crisis characterised by increasing energy insecurity. The crisis intensified from September 2022, when as much as 18,000 MW of generating capacity was unavailable for prolonged periods, with serious consequences for households and the economy. The South African Government has responded through several policy interventions (see Section 2.2), including measures to increase renewable-energy generation. The proposed Energy Facility forms part of this broader response, which establishes the socio-economic relevance of its operational phase. By supplying additional electricity to the interconnected grid, the facility could improve the reliability and availability of electricity within the wider supply system serving the Polokwane and Mogalakwena Local Municipalities and surrounding areas. It would therefore contribute to local, regional and national energy security and, cumulatively, support socio-economic development. The positive impact in this case is a cumulative impact since the proposed Energy Facility forms part of growing system of renewable energy suppliers in the Limpopo Province.

Impact assessment and significance rating:

Existing impact: Relatively poor local economic growth and energy security.

Project impact: Cumulative contribution to energy security and socio-economic development.

Impact type:	Existing impact	Project impact (indirect / cumulative)		Cumulative impact
		Unmitigated	Mitigated	
Intensity:	Major	Minor	NA	Moderate
Duration:	Long term	Long term	NA	Long term
Extent:	Local	Local	NA	Regional
Consequence:	High	Low	NA	Medium
Probability:	Certain	Certain	NA	Certain
Frequency:	Always	Always	NA	Always
Impact status:	Negative	Positive	NA	Positive
Impact significance:	Negative high	Positive low	NA	Positive medium

Assessment risks:

Likelihood of mitigation measures being implemented successfully:	NA
Degree to which impacts can be avoided, managed, or mitigated:	NA
Degree to which impacts can be reversed:	NA
Degree to which impacts could cause irreplaceable loss of resources:	NA
Stakeholder interest:	Positive high
Assessment confidence:	High
Degree to which assessment supports decision-making:	Adequate for decision-making
Gaps and limitations:	Some, but with no effect on the assessment.

5.3.2 Institutional impacts

Institutional impacts (related to government and other institutions) result from infrastructural demand, supply, and maintenance issues, etc.

C) Increased municipal income from property rates and service charges – impact identification and assessment

Impact identification:

The proposed Energy Facility will increase the property-rates base of the Mogalakwena Local Municipality. Once developed, the project land and associated infrastructure are likely to be valued and rated as industrial or business property, generating recurring municipal revenue throughout the facility's operational life. Additional revenue may arise from municipal service charges, development contributions, application fees and service connections. Although the actual amount will depend on the municipal valuation, services used and other factors, the revenue could strengthen municipal finances and support the provision and maintenance of infrastructure and services.

Impact assessment and significance rating:

Existing impact: Revenue of the Mogalakwena Local Municipality is constrained by large arrears and distribution losses, and grant dependence and limited diversification respectively.

Project impact: Revenue of the Mogalakwena Local Municipalities is strengthened.

Impact type:	Existing impact (baseline)	Project impact (indirect)	
		Unmitigated	Mitigated
Intensity:	Minor	Moderate	NA
Duration:	Long term	Long term	NA
Extent:	Local	Local	NA
Consequence:	Low	Medium	NA
Probability:	Certain	Certain	NA
Frequency:	Always	Always	NA
Impact status:	Positive	Positive	NA
Impact significance:	Positive low	Positive medium	NA

Assessment risks:

Likelihood of mitigation measures being implemented successfully:	NA
Degree to which impacts can be avoided, managed, or mitigated:	NA
Degree to which impacts can be reversed:	NA
Degree to which impacts could cause irreplaceable loss of resources:	NA
Stakeholder interest:	Positive high
Assessment confidence:	High
Degree to which assessment supports decision-making:	Adequate for decision-making
Gaps and limitations:	Some, but with no effect on the assessment.
Recommendations:	NA

5.4 SOCIO-ECONOMIC IMPACTS DURING THE DECOMMISSIONING PHASE

The proposed Energy Facility is expected to have a lifespan of about 25 years, after which the installation is likely to be decommissioned, or alternatively, refurbished for continued operation.

- Decommissioning would involve the dismantling and removal of all relevant installations, support systems, and infrastructure. In this case, socio-economic impacts similar to those in the construction phase can be expected, particularly the creation of employment opportunities (Section 5.2.1 A). Such impacts will naturally be short-lived with a relatively low significance.

- Refurbishing the Energy Facility for continued operation would result in the extension of the operational phase impacts and its levels of significance (Section 5.3).

5.5 THE NO-GO ALTERNATIVE

The No-go alternative is unlikely to realise in the case of the proposed Energy Facility. However, in the event of this alternative happening, the '*existing impact (baseline)'* in all the Impact Assessment and Significance Rating tables of this report, will naturally apply.

6. FINAL COMMENTS / IMPACT STATEMENT

The findings of this SEIA indicate that the proposed Energy Facility will result in a range of positive and negative socio-economic impacts, the significance of which varies across the construction, operational and decommissioning phases of the development.

From a positive perspective, the proposed Energy Facility is expected to make a meaningful contribution to local economic activity, particularly during the construction phase, through employment creation, increased demand for goods and services, skills development and a contribution to local GDP. These impacts are particularly important in the Polokwane and Mogalakwena Local Municipalities, where unemployment, poverty and inequality are significant socio-economic challenges.

During the operational phase, the proposed Energy Facility is expected to create permanent or long-term employment opportunities. It will furthermore contribute to local and regional energy security and socio-economic development as a cumulative impact, while also strengthening recurring municipal revenue through property rates and other applicable charges.

However, the SEIA also identifies negative impacts that require careful management. These include:

- Increased construction-related traffic on the N11 and local access routes, with associated risks to motorists, workers, pedestrians and other road users.

- The potential for increased theft, intimidation, extortion and other organised criminal activity during construction.

IMPORTANT NOTE: The Bohwa Bja Rena Communal Property Trust's approval of the proposed Energy Facility (See Section 2.3) should not replace regular consultation with affected households and land users during the construction and operational phase. Communication should occur through an agreed stakeholder-engagement forum, supported by scheduled meetings and written reports in appropriate local languages. The Communal Property Trust should receive regular, accessible updates on the following matters during construction and operation:

- **Project programme and activities:** construction schedules, commissioning dates, operational arrangements and any material changes to the approved project.
- **Land access and use:** areas affected, access restrictions, fencing, servitudes, impacts on grazing or cultivation, and arrangements for restoring disturbed land.
- **Employment and procurement:** available jobs, required skills, recruitment procedures, selection criteria, local-content commitments and opportunities for local suppliers.
- **Community impacts:** expected noise, dust, traffic, visual effects, safety risks and possible disruption to livelihoods or access routes.
- **Traffic and public safety:** delivery schedules, abnormal-load movements, road closures, emergency procedures and measures protecting pedestrians, livestock and other road users.
- **Environmental management:** vegetation clearing, erosion control, waste management, water use, fire prevention and the management of hazardous materials, particularly those associated with the BESS.
- **Community health and safety:** site security, electrical hazards, fire and explosion risks, emergency-response arrangements and appropriate community warning procedures.
- **Benefits and commitments:** progress with community-development initiatives, training, local enterprise support and other undertakings made by the developer.
- **Complaints and grievances:** contact details for the Community Liaison Officer, procedures for lodging complaints, response times and feedback on how grievances have been resolved.
- **Monitoring and incidents:** environmental and socio-economic monitoring results, non-compliance, accidents, security incidents and the corrective measures implemented.
- **Operational matters:** maintenance activities, changes in employment, ongoing land-use restrictions, BESS replacement or disposal, and emergency preparedness.
- **Closure or decommissioning:** anticipated timing, workforce implications, removal or rehabilitation measures and future land-use arrangements.

Notwithstanding the above-mentioned negative impacts, the proposed Energy Facility demonstrates a strong degree of alignment with key policy and planning frameworks, including the Electricity Regulation Act, national energy policies, the Limpopo Development Plan, the Mogalakwena Municipal IDP and the principles of SPLUMA. In particular, the proposed development supports objectives relating to renewable-energy generation, battery storage, energy security, private-sector investment, employment creation, economic development and sustainable infrastructure.

Finally, the proposed Energy Facility is considered socio-economically acceptable, as the positive impacts – particularly those related to employment creation, skills development, economic stimulation, municipal revenue and energy security – are likely to outweigh the identified negative impacts.

– FIN –

ADDENDUM A: STUDY APPROACH

1. SEIA methodology

SEIA generally includes "the processes of analysing, monitoring and managing the intended and *unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, projects) and any social change processes invoked by these interventions. Its primary purpose is to bring about a more sustainable and equitable biophysical and human environment"* (IAIA, 2003:2). In South Africa, the SEIA process is among others directed by DEAT (2006) and subsequent Socio-economic Impact Assessment Guidelines (Barbour, 2007; DPME, 2015).

2. Socio-economic processes and impacts

The above IAIA definition highlights two critical issues, namely socio-economic process and socio-economic consequence (impact), which are tied together in a cause-and-effect relationship. The influential distinction between socio-economic process and socio-economic consequence in the context of SEIA, similar to the difference between biophysical change and biophysical impact in the context of EIA, comes from the model developed by Slootweg *et al*. (2001). Strongly advocated by the International Handbook of Social Impact Assessment (Slootweg *et al*., 2003), this model is subscribed to by the present study. It underlies the importance of segregating socio-economic process from socio-economic impact and ultimately supports the understanding of the processes that can result in socio-economic impacts (Aucamp, 2009).

With reference to the effects of proposed development projects, Slootweg's *et al*. (2003) model suggests pathways or socio-economic change processes which may culminate in socio-economic impacts. Accordingly, development interventions can result in intended or unintended (socio-economic change) processes. Such processes are discreet and observable and may alter the characteristics of a society. They also take place regardless of particular societal contexts (population groups, nations, religions, *etc*.). Under certain conditions (community attributes or the nature and extent of mitigation measures for example), socio-economic change processes may ultimately result in socio-economic impacts.

3. Socio-economic change processes

Several socio-economic change processes can be recognised as the fundamental drivers of socio-economic impacts. These include the following according to Van Schooten *et al*. (2003) and supplemented by the author

of the current report (See also Vanclay *et al*., 2015):

- Demographic processes that relate to the movement of people and/or the demographic composition of human populations.

- Human health and safety processes that affect the physical, mental and material well-being of people.

- Economic processes that affect the economic activity and socio-economic status of people and/or the way they make a living (livelihoods).

- Geographic processes that affect land-use and associated spatial patterns, densities and distributions.

- Institutional processes that affect the organisations that are responsible for urban, provincial or national governance as well as the supply, regulation and maintenance of the goods, services, and infrastructure on which people depend.

- Empowerment processes that affect the ability of people to influence decision-making and the circumstances that impact on their daily lives and well-being.

- Socio-cultural processes that affect the social culture of a society, referring to aspects of the way people live together and / or how this manifests in geographical space.

- Socio-spatial processes that affect the way in which people relate to their residential environments (place utility or sense of place).

- Intrusion processes that relate to imposed environmental disturbance in the form of pollution.

The above list of socio-economic change processes is obviously not complete due to the complex nature of human society and invariably as a result of the multitude of ways in which it may respond to change (Vanclay, n.d.).

4. Identifying socio-economic impacts

The identification of socio-economic change processes during SEIA is naturally followed by the identification of socio-economic impacts. Following the above-mentioned distinction between socio-economic process and socio-economic impact, a socio-economic impact, according to The Interorganizational Committee on Guidelines and Principles for Social Impact Assessment (2003:231), can be defined as:

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

Socio-economic impacts are also something that may be physically experienced (objective impacts in other words that can be quantified, such as changes in people's health and safety) or emotionally perceived by people (subjective impacts in other words that manifest in the *'minds'* of people, such as emotional stress, reduced quality of life, or an altered sense of place). Such experiences and perceptions can be either positive or negative.

Faced with the obvious complexity subsumed in the identification of socio-economic impacts in multifaceted human societies, a framework of SEIA categories is often referred to by practitioners for guidance. The following comprehensive set of SEIA categories is adapted by the present study from Burdge (2004) and act as essential parameters for the structured identification and presentation of socio-economic impacts:

- Population related impacts, resulting from changes in population attributes, the (induced) migration of people, the inflow of a temporary / permanent labour force, *etc*.

- Economic impacts, resulting from employment creation, changes in business activity, livelihoods, economic attributes, *etc*.

- Empowerment impacts, resulting from the social or economic empowerment of vulnerable and other groups.

- Individual and family level impacts, resulting from changes in human movement patterns and social networks, the relocation of individuals and families, *etc*.

- Public health and safety impacts, resulting from changes in community health and safety parameters.

- Impacts related to community resources, resulting from impacts on cultural sites and social and/or physical infrastructure, *etc*.

- Impacts related to community arrangements, resulting from impacts on interest groups.
- Geographical impacts, resulting from land-use related change and associated spatial patterns, densities and distributions.

- Institutional impacts (related to government and other institutions), resulting from infrastructural demand, supply, and maintenance issues; changes in institutional image; land-use change; gentrification; policy related demands and changes; processes that affect urban, provincial or national governance, *etc*.

- Intrusion impacts, resulting from air pollution, noise pollution, light pollution, visual pollution and malodour pollution.

- Socio-cultural impacts, resulting from social disintegration; the creation and/or maintenance of social differentiation, segregation or social inequality, etc.

- Socio-spatial impacts, resulting from changes in people's place utility or their sense of place.

It is important to note the socio-economic impact variables that resort under the different socio-economic change processes may naturally overlap, while the actual socio-economic impacts associated with different impact variables may also coincide. For example, socio-economic impacts that result from employment creation may overlap with empowerment impacts that result from the social or economic empowerment of vulnerable and other groups.

5. The SEIA research process: proposed development of an Energy Facility in the Mogalakwena Local Municipality

The recognition of socio-economic change process categories and relevant impact categories, and the subsequent identification and assessment of the socio-economic impacts that may result from the proposed Energy Facility, were the product of a mixed-methods research methodology. Within this methodology, technical and qualitative methods are used in combination.

In the technical approach, the SEIA practitioner observes socio-economic phenomena and identifies and assesses potential impacts through personal observation, objective research, published literature, existing impact-assessment reports, other relevant information, simulations, moddeling, and professional experience and expertise. In the qualitative approach, by contrast, the practitioner draws on the knowledge and experiences of people likely to be affected by the proposed changes as a basis for identifying and predicting socio-economic impacts (Sogunro, 2001; Becker *et al*, 2004; DPME, 2015). For the proposed Energy Facility, research results were generated by means of a quantitative research approach, with an intensive peer-review process providing a qualitative element.

To identify and assess the socio-economic impacts of the proposed development, research results were filtered through a range of possible socio-economic change processes and impact categories. The impacts were then identified and assessed.[15] Rating criteria of the actual assessment process, the qualitative way in which impacts are rated and presented in a tabular form in other words, are listed below (See the first column of the table below):

- Impact intensity
- Impact duration
- Impact extent
- Impact consequence
- Impact probability
- Impact frequency
- Impact status

[15] The tabular impact assessment process, from *'impact intensity'* at the onset of the method, to *'impact significance'* at the end, was adapted by the author of this report from the customised Environmental Assessment approach of Mari Schroeder-Wolmerans (Ethical Exchange Environmental Services).

– Impact significance

The above criteria are first applied to the so-called 'existing impact' which refers to the current and relevant status of the affected socio-economic environment. Both DEAT (2006) and DPME (2015) emphasise the importance of a proper understanding of the current socio-economic environment, because this presents the baseline for predictions in the SEIA process.

Impact assessment template with impact rating criteria

Impact rating criteria:	Existing impact (baseline)	Policy / programme plan / project impact	
		Unmitigated	Mitigated
Intensity:			
Duration:			
Extent:			
Consequence:			
Probability:			
Frequency:			
Impact status:			
Impact significance:			

The technical definitions of the above-mentioned list of criteria, as well as the sequence (steps) of the impact assessment process, appear in the tables below.

Step 1:		***Identify and Describe the Nature of the Impact***
Existing Impacts		Current level of socio-economic depravation / degradation / predicament associated with the affected socio-economic environment.
Project Impacts		Impacts of the proposed project and associated activities and infrastructure (also known as incremental impacts).
Impact Status	Negative	Impacts with a potential negative / adverse effect
	Neutral	Neutral, no impact
	Positive	Impacts with a potential positive / beneficial effect

Step 2:	***Identify and Discuss Mitigation / Impact Management Measures***
Mitigation Measures (Impact Management)	Measures designed to avoid, reduce or remedy potential adverse impacts. Measures designed to compensate for residual adverse impacts. Measures designed to expand and augment the effect of potential positive impacts (enhancement measures).

Step 3:		***Rating of Impact Consequence and Significance***
Unmitigated		Impact rating assuming the proposed mitigation measures are not in place.
Mitigated		Impact rating assuming the proposed mitigation measures are in place.
Intensity *(Negative Impacts)*	Eliminated	The impact was considered and assessed but found to be not applicable to the affected socio-economic environment.
	Minor	Slight change, disturbance or nuisance. Targets, limits and thresholds of concern never exceeded. Impacts are rapidly and easily reversible. Require no or only minor interventions if these impacts occur. No complaints expected when the impact takes place.
	Moderate	Moderate change, disturbance or discomfort. Large enough to have a real effect. Targets, limits and thresholds of concern may occasionally be exceeded. Impacts are reversible but may require some effort, cost and time. Sporadic complaints can be expected when the impact takes place.
	Major	Substantial change, disturbance or degradation. Real and prominent effects. May result in illness or injury. Targets, limits and thresholds of concern regularly exceeded. Regular complaints can be expected when the impact takes place.
	Extreme	Extreme change, disturbance or degradation. A serious disruption to the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope. Potentially catastrophic.
Intensity *(Positive Impacts)*	Eliminated	The impact was considered and assessed but found to be not applicable to the affected socio-economic environment.
	Minor	Slight change or improvement. Minor benefits.
	Moderate	Moderate change or improvement. Real but not substantial benefits.
	Major	Prominent change or improvement. Real and substantial benefits. General community support.
	Extreme	Considerable large-scale change or improvement compared to current conditions. Widespread benefit. Favourable publicity and/or widespread support expected.
Extent Spatial (geographical) scale of the impact	Site	Impact limited to within the boundaries of the project site. Not notable impact on receptors beyond the site boundary.
	Local	Impact notable in the immediate area (< 5 km) around the project site. Individual sensitive receptors may be affected. Does not affect an entire neighbourhood, habitat or community. Does not affect large numbers of people in nearby townships.
	Regional	Widespread impact within province / district or catchment. Large area or large numbers of sensitive receptors affected. May affect an entire community, neighbourhood or habitat. May affect large numbers of people in nearby residential areas.
	(Inter) national	National and or international (transboundary) impacts.
Duration Risk or impact period. The total length of time (i.e. number of months or years) that the impact or risk will be present	Short-term	Less than 5 years. Impact may occur for the first few years of the project, during construction, or for up to five years. Once the impact source has been removed, the effects are reversible within a one-year period.
	Medium-term	> 5 to 10 years. Impact may occur for up to ten years. Once the impact source has been removed, the effects are reversible within a three-year period.
	Long-term	> 10 years, and for < 10 years after decommissioning or rehabilitation. May occur throughout the operational life of the project but will cease after operations ceases either because of natural processes or human intervention / remediation.
	Permanent	Permanent. Irreversible (residual impacts will remain for more than 10 years after the impact source has been removed.

Step 3:		***Rating of Impact Consequence and Significance***
Unmitigated		Impact rating assuming the proposed mitigation measures are not in place.
Mitigated		Impact rating assuming the proposed mitigation measures are in place.
Intensity *(Negative Impacts)*	Eliminated	The impact was considered and assessed but found to be not applicable to the affected socio-economic environment.
	Minor	Slight change, disturbance or nuisance. Targets, limits and thresholds of concern never exceeded. Impacts are rapidly and easily reversible. Require no or only minor interventions if these impacts occur. No complaints expected when the impact takes place.
	Moderate	Moderate change, disturbance or discomfort. Large enough to have a real effect. Targets, limits and thresholds of concern may occasionally be exceeded. Impacts are reversible but may require some effort, cost and time. Sporadic complaints can be expected when the impact takes place.
	Major	Substantial change, disturbance or degradation. Real and prominent effects. May result in illness or injury. Targets, limits and thresholds of concern regularly exceeded. Regular complaints can be expected when the impact takes place.
	Extreme	Extreme change, disturbance or degradation. A serious disruption to the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope. Potentially catastrophic.
Consequence		Consequence = Intensity + Duration + Extent The outcome or result of an impact / risk being realised.

Probability	Likelihood that the impact will occur.	
	Eliminated	The impact was considered and assessed but found to be not applicable to the project site or affected socio-economic environment.
	Highly Unlikely	Conceivable but will only happen in exceptional circumstances (<20% chance of happening).
	Possible	Plausible. Could happen and has occurred here or elsewhere (20 to 50% chance of happening).
	Highly Likely	Probable (>50 to 80 % chance of happening).
	(Near) Certain	Definite or expected. The impact cannot be prevented. (>80 % chance of happening).
Frequency	How often (number of occurrences) the impact would manifest over the impact duration period.	
	Sporadic	< 5% of the time. Once off occurrence. Effects only present for a short period of time, no residual effects.
	Occasional	5 to 30% of the time. Occurring from time to time without specific periodicity or pattern. Effects are reversed quickly and easily.
	Regular	> 30 to < 80% of the time.
	(Near) Always	> 80 to 100% of the time.
Significance	Significance = Consequence x (Probability + Frequency)	
	Negative Very High	Widespread negative effect. Negative impact that is of the highest order. Potential fatal flaw. Unacceptable impact / loss of a resource will occur.
	Negative High	Substantial negative impact.
	Negative Moderate	Negative impact that is real but not substantial.
	Negative Low	Low to negligible negative impact with little real effect.
	Positive Low	Low to insignificant positive impact.
	Positive Moderate	Positive impact that is real but not substantial.
	Positive High	Substantial positive impact.
	Positive Very High	Widespread/substantial beneficial effect.

Impact Rating Matrix

CONSEQUENCE (Intensity + Duration + Extent)	***INTENSITY:***	***DURATION:***	***EXTENT:***			
			Site	*Local*	*Regional*	*(Inter)national*
	Extreme	*Permanent*	**High**	**Very High**	**Very High**	**Very High**
		Long-term	**High**	**High**	**Very High**	**Very High**
		Medium-term	**High**	**High**	**High**	**Very High**
		Short-term	**Medium**	**High**	**High**	**High**
	Major	*Permanent*	**High**	**High**	**Very High**	**Very High**
		Long-term	**High**	**High**	**High**	**Very High**
		Medium-term	**Medium**	**High**	**High**	**High**
		Short-term	**Medium**	**Medium**	**High**	**High**
	Moderate	*Permanent*	**Medium**	**Medium**	**High**	**High**
		Long-term	**Medium**	**Medium**	**Medium**	**High**
		Medium-term	Low	**Medium**	**Medium**	**Medium**
		Short-term	Low	Low	**Medium**	**Medium**
	Minor	*Permanent*	Low	Low	**Medium**	**Medium**
		Long-term	Low	Low	**Medium**	**Medium**
		Medium-term	Low	Low	Low	Low
		Short-term	Low	Low	Low	Low
	Eliminated	*Permanent*	None			
		Long-term				
		Medium-term				
		Short-term				

SIGNIFICANCE (Consequence x (Probability + Frequency)	***PROBABILITY:***	***FREQUENCY:***	***CONSEQUENCE:***				
			None	*Low*	*Medium*	*High*	*Very High*
	(Near) Certain	*Regular / Always*	None	Low	**Medium**	**High**	**Very High**
		Occasional	None	Low	**Medium**	**High**	**Very High**
		Sporadic	None	Very Low	Low	**Medium**	**High**
	Highly Likely	*Regular / Always*	None	Low	**Medium**	**High**	**Very High**
		Occasional	None	Very Low	Low	**Medium**	**High**
		Sporadic	None	Very Low	Very Low	Low	**Medium**
	Possible	*Regular / Always*	None	Very Low	Low	**Medium**	**High**
		Occasional	None	Very Low	Very Low	Low	**Medium**
		Sporadic	None	Very Low	Very Low	Very Low	Low
	Highly Unlikely	*Regular / Always*	None	Very Low	Low	**Medium**	**High**
		Occasional	None	Very Low	Very Low	Low	**Medium**
		Sporadic	None	Very Low	Very Low	Very Low	Low
	Eliminated	*N/A*	None	None	None	None	None

ADDENDUM B: PROPOSED ENERGY FACILITY: ESTIMATED DEVELOPMENT COST

The cost breakdown for modules, trackers, inverters, roads, buildings and other subcomponents represents an indicative allocation of the overall benchmark costs. Published sources, such as those listed below, generally provide total installed costs per kilowatt or kilowatt-hour; they do not verify the precise cost of every component of the proposed Energy Facility. The estimate is based on the project specifications supplied by the applicant and published international cost benchmarks. It is not based on contractor quotations. The references at the end support the key assumptions.

Main component	Detailed cost item	Cost (R million)
Solar PV plant	PV modules	1,05
	Single-axis tracking structures	420
	Inverters and transformer stations	320
	DC electrical infrastructure	260
	AC collection system	200
	Civil works and installation	330
	Control and commissioning	120
	Solar PV subtotal	**2,7**
Battery Energy Storage System	Battery cells, racks and containers	1,78
	Power-conversion system	360
	Transformers and switchgear	210
	Thermal-management system	100
	Fire detection and suppression	60
	Energy-management and control system	80
	Civil works and installation	180
	Testing and commissioning	80
	BESS subtotal	**2,85**
Onsite substation	Power transformers	120
	High-voltage switchgear	90
	Civil works	45
	Protection and control	70

	Substation subtotal	**325**
Grid-connection line	Towers, poles and conductors	50
	Foundations and construction	22
	Connection and commissioning	18
	Grid-connection subtotal	**90**
Roads and site infrastructure	External access road	40
	Internal roads and drainage	65
	Operational buildings	35
	Fencing and security	28
	Water and sanitation	25
	Laydown areas and rehabilitation	20
	Communications and miscellaneous infrastructure	12
	Site-infrastructure subtotal	**225**
	Direct installed cost	**6,19**
Development costs	Environmental and statutory approvals	25
	Engineering and design	145
	Project management and owner's engineer	70
	Legal, financial and procurement costs	45
	Surveys, land and preconstruction costs	25
	Development and owner's-cost subtotal	**310**
Contingency	Design and construction contingency	**620**
	Total estimated Phase 2 capital cost	**7,12**

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ADDENDUM C: LETTERS OF CONSENT

BOHWA BJA RENA COMMUNAL PROPERTY TRUST

Tel: 015 – 426 0010
Fax: 015 – 426 0011

Bohwa Bja Rena CPT
Private Bag X2473
MOKOPANE 0600
South Africa

28/08/2025

FORETHOUGHT CAPITAL Pty Ltd

1st BRIDGEWAY ROAD SPACES,

CENTURY CITY

CAPETOWN

7441

DEAR MR METHULI MBANJWA (DIRECTOR)

BBRCPT, HEREBY AUTHORISE FORETHOUGHT CAPITAL Pty Ltd, MR METHULI MBANJWA TO LEASE AT GILLIMBERG FARM EXTEND 861LR NEXT TO BORUTHO SUBSTATION FOR APPROXIMATELY 305 HECTARS AS THEY PROPOSED, FOR RENEWABLE ENERGY SOLAR PROJECT FOR THE PERIOD OF 30 YEARS FOR THE DEVELOPMENT OF A 200MW UTILITY-SCALE SOLAR PHOTOVOLTAIC (PV) PLANT AND BATTERY ENERGY STORAGE FACILITY.

PROCEDURES AND PROTOCOLS MUST BE FOLLOWED.

AFTER THE APPROVAL OF THE MINISTER, THE PROJECTS MUST START WITHIN THE PERIOD OF TWO YEARS AND FAILURE TO DO SO THE BBRCPT WILL REVOKE THEIR AUTHORISATION LETTER.

YOURS SINCERELY,

MR M.E DUBA -CHAIRPERSON

0835042399

eric.duba0835042399@gmail.com

MS M.A MARAKALALA - SECRETARY

0798619307

mamolokoadelaide91@gmail.com

BOHWA BJA RENA COMMUNAL PROPERTY TRUST
REG NO: IT9586/2001
MOKOPANE. 0600
LIMPOPO
SOUTH AFRICA

TRUSTEES: CHAIRPERSON-DUBA ME, RAMATLAKALA NJ, MARAKALALA MA, MOLOMO JR, SERUMULA MJ, MOHLABYA BR

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