DRAFT BASIC ASSESSMENT REPORT

for

LANGSIDE RENEWABLE ENERGY FACILITY AND ASSOCIATED GRID CONNECTION INFRASTRUCTURE

on

Portion 7 of the Farm 198 Langside

In terms of the

National Environmental Management Act (Act No. 107 of 1998, as amended) & 2014 Environmental Impact Regulations

Prepared for Applicant: **Impower Langside 10MW PV Wheeling Project (Pty) Ltd.**

Date: **29 April 2024**

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Report Reference: CHR804/02
Department Reference: To be Allocated
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PURPOSE OF THIS REPORT:

Stakeholder Engagement

APPLICANT:

Impower Langside 10MW PV Wheeling Project (Pty) Ltd.

CAPE EAPRAC REFERENCE NO:

CHR804/02

SUBMISSION DATE

29 April 2024

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in terms of the
National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended & Environmental Impact Regulations 2014

Langside Renewable Energy Facility

Portion 7 of the Farm 198 Langside

Submitted for:
Stakeholder Review & Comment

Report Issued by:
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BASIC ASSESSMENT REPORT

(For official use only)

File Reference Number:	
NEAS Number:	
Date Received:	

Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2014 as amended, promulgated in terms of the National Environmental Management Act, 1998(Act No. 107 of 1998), as amended.

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2014 as amended and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
3. Where applicable **tick** the boxes that are applicable or **black out** the boxes that are not applicable in the report.
4. An incomplete report may be returned to the applicant for revision.
5. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
6. This report must be handed in at offices of the relevant competent authority as determined by each authority **unless indicated otherwise by the Department**.
7. No faxed or e-mailed reports will be accepted **unless indicated otherwise by the Department**.
8. The report must be compiled by an independent environmental assessment practitioner (EAP). The EAP must satisfy conditions 11 below.

9. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.

10. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.

11.1 The Environmental Assessment Practitioner (EAP) must be registered in terms of S24H Regulations with the Registration Authority EAPASA as from 8 August 2022.

11.2. S24H (14) states that "only a person registered as an Environmental Assessment practitioner may perform tasks in connection with an application for an environmental authorisation contemplated in

(a)Chapter 5 of the Act read with the Environmental impact Assessment Regulations.

(b)Section 24G of the Act

(c) Chapter 5 of the National Environmental Management Waste Act 2008 (Act No 59 of 2008) read with the Environmental Impact Assessment Regulations

11.3. Tasks in regulation 14 may only be conducted by an EAP that is registered

11.4. Regulations 20 of S24H indicates the offences and penalties as indicated below:

"*20. Offences and penalties*

(1) A person is guilty of an offence if that person-

(a) contravenes regulation 14 of the Regulations; or

(b) pretends to be a registered environmental assessment practitioner or registered candidate environmental assessment practitioner.

(2) A person convicted of an offence in terms of subregulation (1) is liable to the penalties contemplated in section 49B(3) of the Act.".

Section 49B(3) of the Act states:

"A person convicted of an offence in terms of section 49A(1)(h), (l), (m), (n), (o) or (p) is liable to a fine or to imprisonment for a period not exceeding one year, or to both a fine and such imprisonment.".

SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section?	✓YES	~~NO~~

If YES, please complete declaration form for each specialist thus appointed:

Any specialist reports must be contained in Appendix D.

1. ACTIVITY DESCRIPTION

Describe the activity, which is being applied for, in detail

The applicant, Impower Langside 10MW PV Wheeling Project (Pty) Ltd, is proposing the construction and operation of an up to 30 Megawatt (MW) DC Solar Photovoltaic (PV) Project and associated infrastructure on Portion 7 of the Farm 198 Langside near Komani in the Enoch Mgijima Local Municipality of the Eastern Cape Province.

The proposed project includes Solar photovoltaic (PV) technology (monofacial or bifacial) with fixed, single or double axis tracking mounting structures with a generation output of up to 30MW, as well as associated infrastructure, which will include:

- Laydown area;
- Access and Internal road network;
- Auxiliary buildings (33kV switch room, gate-house and security, control centre, office, warehouse, canteen & visitors centre, staff lockers etc.);
- Facility (IPP) substation;
- Inverter-station, transformers and internal electrical reticulation (underground cabling);
- Rainwater Tanks;
- Battery Energy Storage System and
- Perimeter fencing and security infrastructure.

It must be noted that two applications have been submitted to the competent authority for decision making, the first application is for the infrastructure detailed above and the second application is for the Eskom side of the electrical grid infrastructure including the Eskom substation and loop in – loop out powerline.

Both these applications are being undertaken as part of an integrated assessment process as agreed with the Department during the pre application meeting held in Komani on 04 July 2023.

2. FEASIBLE AND REASONABLE ALTERNATIVES

"alternatives", in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

(a) the property on which or location where it is proposed to undertake the activity;
(b) the type of activity to be undertaken;
(c) the design or layout of the activity;
(d) the technology to be used in the activity;
(e) the operational aspects of the activity; and

(f) the option of not implementing the activity.

Describe alternatives that are considered in this application. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. The determination of whether site or activity (including different processes etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

Site Selection Process

The site selection process followed a two-stage approach; firstly, to select the properties for the proposed development and secondly, to select the footprint of the proposed development within the farm portion.

Property Selection

The following criteria were taken into account by the applicant when selecting the property for the proposed development of the Langside Renewable Energy Facility.

Proximity to towns with a need for socio-economic upliftment

The PV Facility is situated approximately 10 km from the town of Komani in the Eastern Cape Province within the jurisdiction of the Enoch Mgijima Local Municipality.

The Integrated Development Plan (IDP) for the Municipality identifies a number of key challenges facing the Municipality, including poverty, high levels of unemployment and skills shortages.

Due to the close proximity to Komani, local labour and service providers would be easy to source, which fits in well with the Department of Energy's economic development criteria for socio-economic upliftment.

In this regard the development has the potential to support private sector investment and create employment and skills development opportunities.

Solar Irradiation

The economic viability of a solar PV facility is directly dependent on the annual solar irradiation at the site. From a regional site selection perspective, this region is considered to be preferred for solar energy development by virtue of its annual solar irradiation values. The GHI for the area derived from the World Bank Group's Global Solar Atlas is approximately 1 843 kWh/m2/annum.

The irradiation level is an important factor to the economic viability of a project.

Access to grid

Ease of access into the Eskom electricity grid is vital to the viability of a solar PV facility. Projects which are in close proximity to a connection point and/or demand centre are favourable, and reduce the losses

associated with power transmission. The proposed Langside Renewable Energy Facility will connect to the National Grid via a very short connection, thus minimizing such energy losses.

Current Land Use

The current land use of the site is low density livestock farming with cattle. The available grazing consists of natural veld and there are no planted pastures and no grass harvesting and baling.

Proximity to access road for transportation of material and components

The development area can be accessed via the R61 existing regional road. As material and components would need to be transported to the project site during the construction phase of the project, the accessibility of the site was a key factor in determining the viability of the project, particularly taking transportation costs (direct and indirect) into consideration and the impact of this on project economics.

Landowner support

The selection of a site where the landowner is supportive of the development of renewable energy is essential for ensuring the success of the project. The support from the landowner for the development to be undertaken on the affected property has been solidified by the provision of the consent for the project to proceed on the property through the signing of an option to lease agreement with the developer.

Footprint Selection

The selection of the proposed footprint within Portion 7 of the Farm 198 Langside followed a risk adverse, bottom-up approach in order to ensure that the impacts of the proposed developments can be avoided as far as possible. This avoidance approach reduces the degree of mitigation required in order ensure that potential environmental impacts are within acceptable levels.

Following the identification of the target properties, the following specialists undertook an assessment in order to confirm site sensitivity and identify any sensitive features or buffer areas that needed to be avoided in the determination of the preferred layout alternative:

- Terrestrial Biodiversity,
- Aquatic Biodiversity,
- Avifauna,
- Agriculture,
- Heritage and
- Visual.

During this site sensitivity screening, the relevant sensitivities were identified by these specialists. The preferred layout alternative was then developed to avoid all these sensitivities with the exception of a single watercourse crossing required to access the site.

Paragraphs 3 – 13 below should be completed for each alternative.

3. ACTIVITY POSITION

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.
List alternative sites if applicable.

Alternative:	**Latitude (S):**		**Longitude (E):**	
Alternative S1 [1] (preferred or only site alternative)	33º	56.938‘	26º	44.482‘
~~Alternative S2 (if any)~~	~~º~~	~~‘~~	~~º~~	~~‘~~
~~Alternative S3 (if any)~~	~~º~~	~~‘~~	~~º~~	~~‘~~

In the case of linear activities:

Alternative:	**Latitude (S):**		**Longitude (E):**	
Alternative S1 (preferred or only route alternative)				
• Starting point of the activity	31º	57.045‘	26º	44.423‘
• Middle point of the activity	31º	57.058‘	26º	44.448‘
• End point of the activity	31º	57.069‘	26º	44.450‘
~~Alternative S2 (if any)~~				
~~• Starting point of the activity~~	~~º~~	~~‘~~	~~º~~	~~‘~~
~~• Middle point of the activity~~	~~º~~	~~‘~~	~~º~~	~~‘~~
~~• End point of the activity~~	~~º~~	~~‘~~	~~º~~	~~‘~~
~~Alternative S3 (if any)~~				
~~• Starting point of the activity~~	~~º~~	~~‘~~	~~º~~	~~‘~~
~~• Middle point of the activity~~	~~º~~	~~‘~~	~~º~~	~~‘~~
~~• End point of the activity~~	~~º~~	~~‘~~	~~º~~	~~‘~~

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

4. PHYSICAL SIZE OF THE ACTIVITY

Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

Alternative:	**Size of the activity:**
Alternative A1[2] (preferred activity alternative)	85 0000m^2
~~Alternative A2 (if any)~~	~~m^2~~

[1] “Alternative S..” refer to site alternatives.
[2] “Alternative A..” refer to activity, process, technology or other alternatives.

~~Alternative A3 (if any)~~	~~m²~~

or, for linear activities:

Alternative:	**Length of the activity:**
Alternative A1 (preferred activity alternative)	50m
~~Alternative A2 (if any)~~	~~m~~
~~Alternative A3 (if any)~~	~~m~~

Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

Alternative:	**Size of the site/servitude:**
~~Alternative A1 (preferred activity alternative)~~	~~m²~~
~~Alternative A2 (if any)~~	~~m²~~
~~Alternative A3 (if any)~~	~~m²~~

5. SITE ACCESS

Does ready access to the site exist?	✓YES	~~NO~~
If NO, what is the distance over which a new access road will be built	~~m~~	

Describe the type of access road planned:

The proposed PV Facility will gain access via the existing farm access from the R61 as shown in the image below.

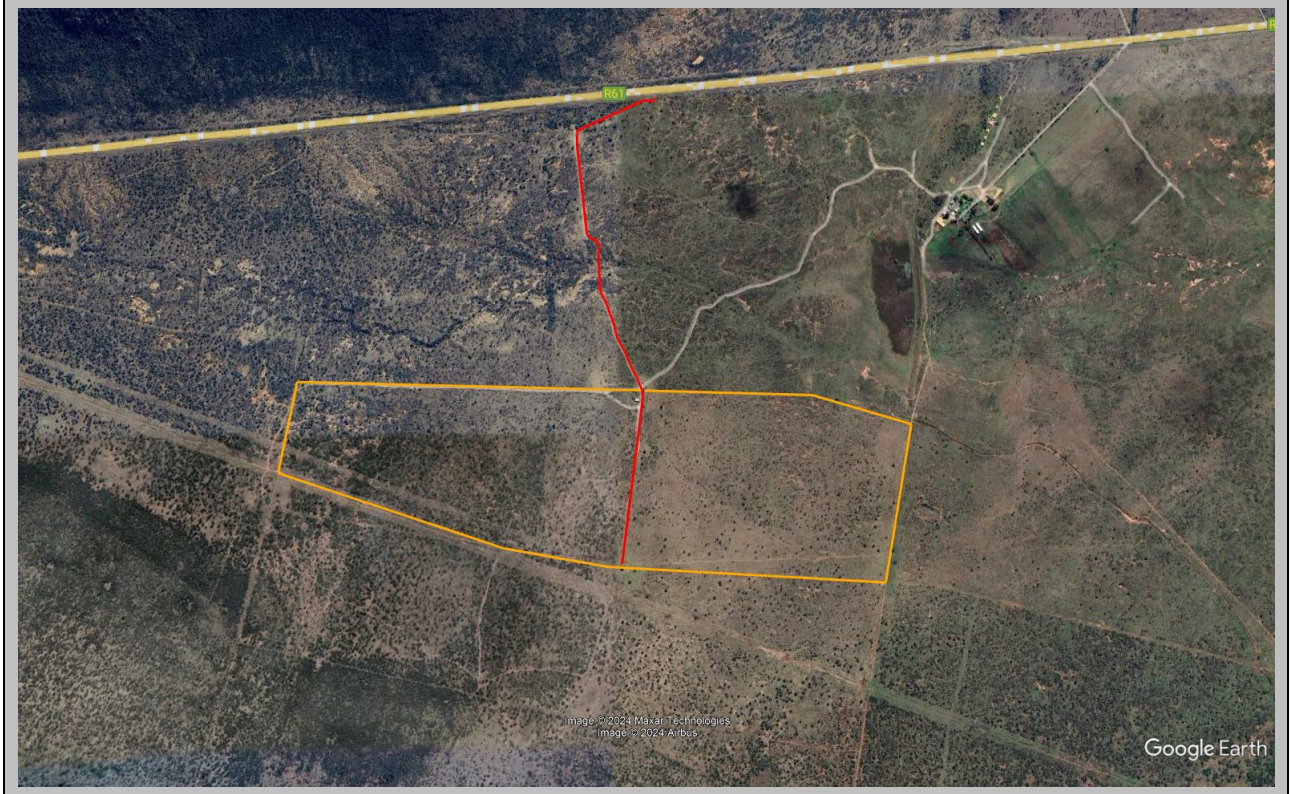


Figure 1: Existing access to the Langside Renewable Energy Facility (Red).

The existing farm access will be widened (up to 10m wide) and the road geometry improved to facilitate access to the PV site by heavy vehicles.

The road would have a gravel surface constructed to Natural Ground Level to maintain natural sheet flow, however, it will only be known at detailed design phase should any portions of the road require concrete surfacing or other wearing course. In the event that any concrete surfacing is required, this will be completed in line with the environmental management programme as approved by the competent authority.

The existing access crosses a non-perineal watercourse as indicated in the image below.

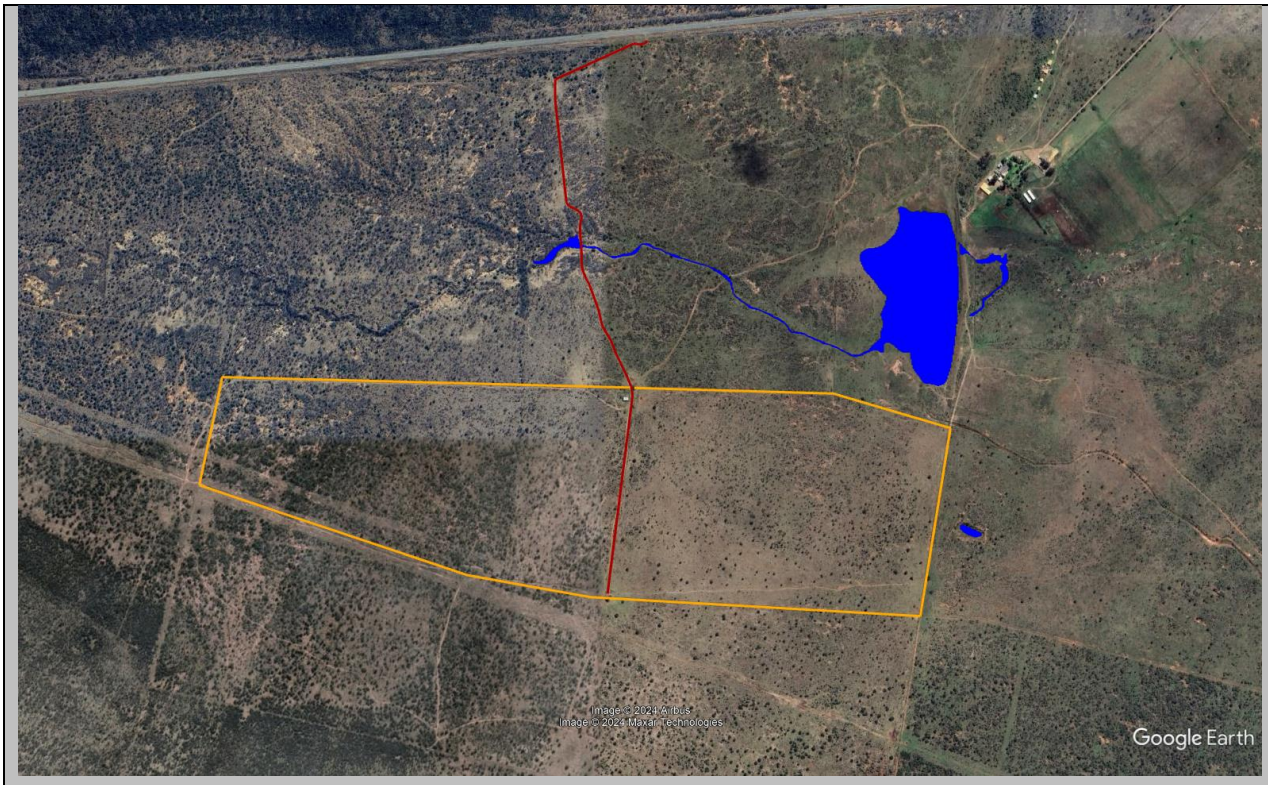


Figure 2: Existing access road (red) in relation to the aquatic features(blue) identified by the aquatic specialist.

A low level crossing or box culverts will be constructed where the access road intersects with this aquatic feature.

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

6. SITE OR ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix A to this document.

The Site Plan for the PV Facility and the Route Plan for the Electrical Grid Infrastructure is included in Appendix A.

The site or route plans must indicate the following:

6.1 the scale of the plan which must be at least a scale of 1:500;

6.2 the property boundaries and numbers of all the properties within 50 metres of the site;

6.3 the current land use as well as the land use zoning of each of the properties adjoining the site or sites;

6.4 the exact position of each element of the application as well as any other structures on the site;

6.5 the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, street lights, sewage pipelines, storm water infrastructure and telecommunication infrastructure;

6.6 all trees and shrubs taller than 1.8 metres;

6.7 walls and fencing including details of the height and construction material;

6.8 servitudes indicating the purpose of the servitude;

6.9 sensitive environmental elements within 100 metres of the site or sites including (but not limited thereto):

- rivers;
- the 1:100 year flood line (where available or where it is required by DWA);
- ridges;
- cultural and historical features;
- areas with indigenous vegetation (even if it is degraded or invested with alien species);

6.9 for gentle slopes the 1 metre contour intervals must be indicated on the plan and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the plan; and

6.10 the positions from where photographs of the site were taken.

7. SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under Appendix B to this form**.** It must be supplemented with additional photographs of relevant features on the site, if applicable.

Site photographs taken by the EAP as well as participating specialists are attached in Appendix B.

8. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of 1:200 as Appendix C for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.

The Site Development Plan for both the proposed PV and Electrical Grid Infrastructure is attached in Appendix C. This SDP includes spatial representation of all sensitive areas as identified by the participating specialists. Images and descriptions of activities that will be undertaken for the construction of the Langside Renewable Energy Facility are shown in the images below.

1: <u>Solar array</u>

Solar PV modules are connected in series to form a string. A number of strings are then wired in parallel to form an array of modules. PV modules are mounted on structures that are either fixed, north-facing at a defined angle, or mounted to a single or double axis tracker to optimise electricity yield.

2: <u>Mounting structures</u>

Various options exist for mounting structure foundations, which include cast/pre-cast concrete, driven/rammed piles, or ground/earth screws mounting systems. Due to the presence of ephemeral washes and secondary watercourses within the PV footprint, driven/rammed piles and earth screws are the preferred mounting technology.

Figure 3: Cast Concrete Foundation - alternative mounting (Cape EAPrac, 2022)

Figure 4: Driven/ Rammed Steel Pile (left) and Ground Screw (right) are the preferred mounting technology (PV Magazine, 2019)

The impact these options are considered to be similar, however concrete is least preferred due the effort required at a decommissioning phase in order to remove the concrete from the soil, and therefore its impact on the environment. The Langside Renewable Energy Facility will therefore aim to make the most use of

either driven/rammed piles, or ground/earth screws mounting systems, and only in certain instances resort to concrete foundations should geotechnical studies necessitate this.

The images below show typical examples of the preferred mounting technology during and after installations (Photos: Cape EAPrac).

Figure 5: Pre-drilling of holes prior to the ramming of steel piles.

Note that the vegetation is not completely removed prior to the drilling and installation of the piles. In the case of Langside Renewable Energy Facility, the Woody Vegetation would be removed.

Figure 6: pre-drilled holes are backfilled with a wet sand mixture and steel piles placed in position ready for ramming.

The predrilled holes are backfilled on a continuous basis to ensure that no fauna is trapped in the holes

Figure 7: Ramming of steel piles into the pre-drilled / backfilled holes.

Note that the ramming machines follow the same entry and exit routes as the drilling rigs in order to reduce the impacts of trampling and compaction. In certain geotechnical conditions, a concrete cap will be placed once the ramming is complete.

Figure 8: Completed ramming and assembly showing vegetation remaining intact beneath the modules.

Figure 9: Showing vegetation re-establishing along the driplines of the arrays within weeks after installation.

3: <u>Auxiliary buildings</u>

The auxiliary buildings will comprise the following as a minimum:

- 33 kV switch room;
- Control building/ centre;
- Offices;
- Warehouses;
- Canteen & visitors centre;
- Staff lockers & ablution; and
- Gate-house and security.

The total area occupied is approximately 1 ha, excluding the facility switching station/ substation.

4: <u>Grid connection and cabling</u>

The Langside Renewable Energy Facility's grid connection infrastructure includes:

- Underground medium-voltage cabling between the project components and the facility substation;
- Up to 66kV facility substation.
- Up to 66kV Eskom substation / switching station (including Tsolwana and Komani connections)
- Loop in Loop out connection into the existing Eskom Tsolwana-Komani 66kV powerline

Note that bullet point 2 and 3 above, although assessed as part of this assessment are the subject of a separate application.

5: Access routes and internal roads

The main access road from the R61 will be up to 10 m (inclusive of storm water infrastructure). It is proposed that the main access road will be constructed with a gravel wearing course, but may be also be fully or partially surfaced, should this be required. This follows the existing farm access road that will be upgraded.

A network of gravel internal access roads and a perimeter road, each with a width of up to ± 5 m, will be constructed to provide access to the various components of the Langside Renewable Energy Facility.

Should the existing access on the R61 require upgrade, approval from the Eastern Cape Department of Transport will be required.

6: Battery Storage Energy System.

The proposal for the Langside Renewable Energy Facility includes the installation of an up to 2.8 ha Battery Energy Storage System (BESS) situated adjacent to the on-site substation.

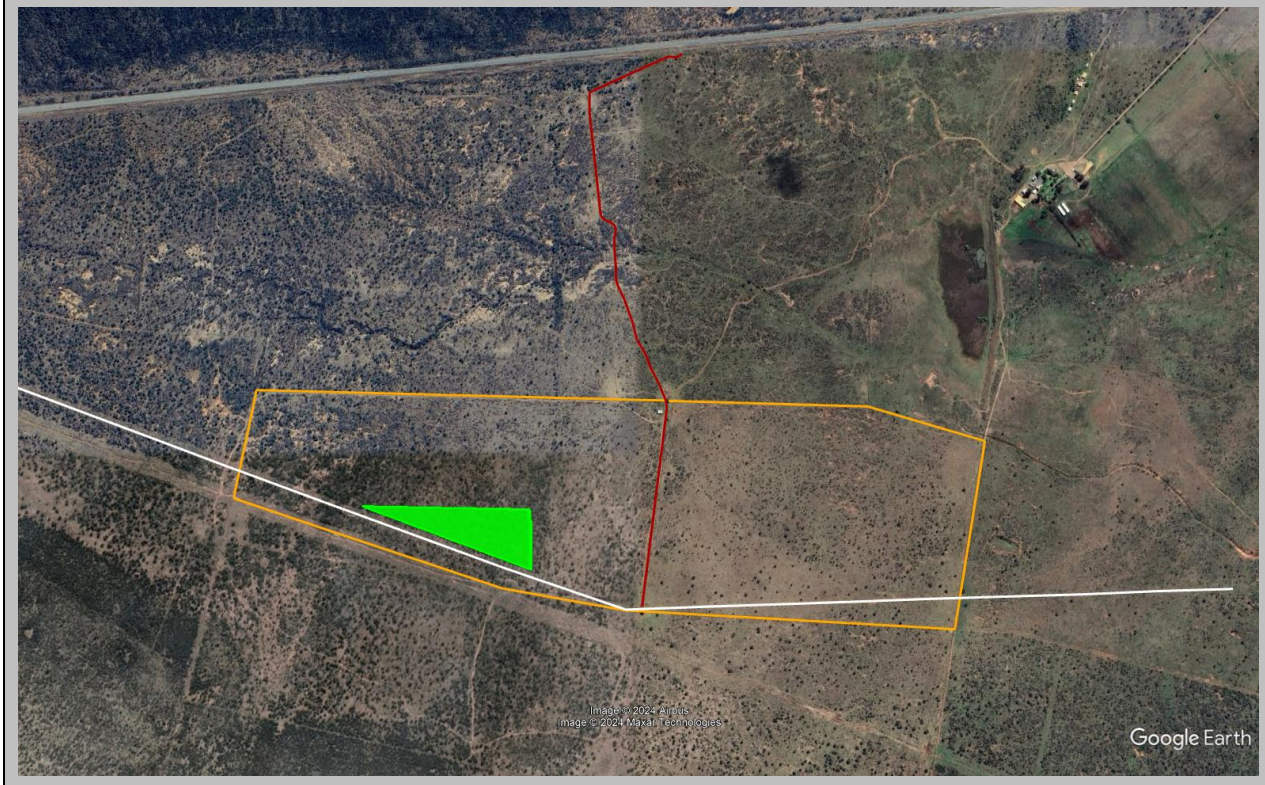


Figure 10: Location of BESS (green) in relation to the development footprint of the Langside Renewable Energy Facility.

It must be noted that this BESS area will be also utilised as a temporary laydown area and site camp during the construction of the PV development.

As technological advances within battery energy storage systems (BESS) are frequent, two BESS technology alternatives were initially considered: Solid state battery electrolytes and Redox Vanadium - flow technology.

Considering the nature of the project, only a solid-state technology type is considered for the Langside Renewable Energy Facility. The technology includes batteries housed within containers which are fully

enclosed and self-contained. Therefore, the assessment proposes all solid-state technologies for authorisation to allow the precise technology to be selected when the project is implemented.

Figure 11: Example of Battery Energy Storage System on the Scatec Kenhardt PV Project near Kenhardt in the Northern Cape Province (Photo: Cape EAPrac 2023).

The battery storage facility will be constructed on a 2.8ha footprint adjacent to the MV switching station substation as shown on the Site Location Plans in Appendix A.

7. EXTERNAL SERVICES.

The following external services will be required for the construction and operation of the Langside Renewable Energy Facility.

7.1 Solid waste

Solid waste during the construction phase will mainly be in the form of construction material, excavated substrate and domestic solid waste. All waste will be disposed of in scavenger proof bins and temporarily placed in a central location for removal by the contractor. Any other waste will be removed once construction is complete and disposed of at a registered waste facility. Excess excavation material will either be spoiled offsite at a registered facility or used for landscaping berms within the overall PV footprint.

7.2 Sewerage

During the construction phase, chemical ablution facilities will be utilised. These ablution facilities will be maintained, serviced and emptied by an appointed contractor, who will dispose of the effluent at a licensed facility off site. Once construction is complete, the chemical ablution facilities will be removed from the study area. A conservancy tank which will be regularly emptied by a registered service provider will be installed at the Operations and Maintenance building.

7.3 Water

Water required during the construction and operation phases will be sourced from (in order of priority):

- The Local Municipality - Specific arrangements will be agreed with the Enoch Mgijima local municipality in a Service Level Agreement (SLA). Most likely the water will be either trucked in, or otherwise made available for collection at their Water Treatment Plant via a metered standpipe.
- Investigation into a third-party water supplier which may include a private services company.
- The investigation of drilling a borehole on site, which includes complete geohydrological testing, groundwater census and a Water Use License Application (WULA) in terms of section 21a of the National Water Act, 1998.

7: Hazardous substances

During the construction phase, use of the following hazardous substances is anticipated:

- Cement powder associated with the batching plant;
- Petrol/diesel for trucks/ cranes/ bulldozers;
- Limited amounts of lubricants and transformer oils;
- Defunct or damaged PV modules; and
- Defunct or damaged battery units.

Temporary storage and disposal of hazardous waste will be done in compliance with relevant legislation (i.e., stored in covered containers with appropriate bunding). Refuelling areas to be in designated positions, with suitable mitigation to reduce the risk of hydrocarbon spills. In Terms of the EMPr, Spill kits will be available on site to clean up any minor spillages.

Figure 12: Hydrocarbon Spill Kits must be in place within the site camp and in the field within 500 m of any drilling or ramming activity.

9. ACTIVITY MOTIVATION

9(a) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	R400 000 000	
What is the expected yearly income that will be generated by or as a result of the activity?	R70 000 000	
Will the activity contribute to service infrastructure?	✓YES	~~NO~~
Is the activity a public amenity?	~~YES~~	✓NO
How many new employment opportunities will be created in the development phase of the activity?	75	
What is the expected value of the employment opportunities during the development phase?	R5 000 000	

What percentage of this will accrue to previously disadvantaged individuals?	80%
How many permanent new employment opportunities will be created during the operational phase of the activity?	12
What is the expected current value of the employment opportunities during the first 10 years?	R30 000 000
What percentage of this will accrue to previously disadvantaged individuals?	60%

9(b) Need and desirability of the activity

Motivate and explain the need and desirability of the activity (including demand for the activity):

In keeping with the requirements of an integrated Environmental Impact process, the DEA&DP[3] *Guidelines on Need and Desirability (2010 & 2011)* were referenced to provide the following estimation of the activity in relation to the broader societal needs. The concept of need and desirability can be explained in terms of its two components, where *need* refers to *time* and *desirability* refers to *place*. Questions pertaining to these components are answered in the Sections below.

The section above considers the overall need for alternative, so-called 'green energy' in light of the known environmental burdens associated with the impact of coal power generation through which most of our country's electricity is currently being generated. Associated aspects such as air pollution, water use and carbon tax are discussed in order to further explain the need and desirability for 'green energy' projects in general. This section provides an overview need and desirability of the proposed Langside Renewable Energy Facility.

1: <u>Feasibility consideration</u>

The commercial feasibility for the proposed 30 MW Renewable Energy Facility to be built on private land near Komani, has been informed by its contextual location, and economic, social and environmental impacts and influence. The project has gathered sufficient information that the EAP is able to make qualified and reliable assumptions on the project's various impacts.

2: <u>Solar Resource & Energy Production</u>

The economic viability of a solar PV facility is directly dependent on the annual solar irradiation at the site. From a regional site selection perspective, this region is considered to be preferred for solar energy

[3] The Western Cape Provincial guidelines on Need and Desirability were considered in the absence of National and Eastern Cape Guidelines.

development by virtue of its annual solar irradiation values. The GHI for the area derived from the World Bank Group's Global Solar Atlas is approximately 1443 kWh/m^2/annum.

3: Solar Farm & Grid Connection

Ease of access into the Eskom electricity grid is vital to the viability of a solar PV facility. Projects which are in close proximity to a connection point and/or demand centre are favourable, and reduce the losses associated with power transmission. The proximity of the Tsolwana-Komani 66kV line directly adjacent to the site allows for a simple connection with very low opportunity costs.

4: Social impact

Please refer to the Social Impact Assessment in Appendix D for a detailed description of the social environment.

Power generation is one of the growth opportunities for the Eastern Cape Province Province. This setup creates growth opportunities for the area and the establishment of a renewable energy project is considered important to diversify and complement the economic development of the region.

5: Employment & Skills Transfer

The benefits of renewable energy facilities to local regions are not confined to the initial investment in the project. They also provide a reliable and on-going income for landowners and municipality, creating direct employment opportunities for locals, as well as flow-on employment for local businesses through provision of products and services to the project and its employees.

The Langside Renewable Energy Facility will have a positive impact on local employment. During the estimated 18 month construction phase, the project will employ approximately 75 individuals of various qualifications. The majority will be provided by the local labour market. During operations, the Langside Renewable Energy Facility is expected to have up to 12 employment opportunities ranging from security staff to administration and artisans. Due to the fact that there is limited local skilled labour in the field of renewable energy, the employment structure will likely consist of local and outside capacity. To guarantee successful operations over the lifetime of the investment, the Langside Renewable Energy Facility will likely use the skills of outside labour to cross-train local specialists. This cross training and skills development will take place especially in the area of technical maintenance and administration.

6. Need (time)

In accordance with the guidelines on need and desirability[4], a project should be able to answer a series of questions to demonstrate need. These are highlighted in the table below:

Table 1: Project Need Analysis

Need	**Discussion**	
Is the land use considered within the timeframe intended by the existing approved Spatial Development Framework (SDF)? (I.e., is the proposed development in line with the projects and programmes identified as priorities within the credible IDP?	Yes	Eastern Cape Provincial Development Plan-2030. The vision set out for 2030 is stated as a point along a journey towards ubuntu, where by 2030 the Eastern Cape will seek to achieve the commitment for the province where: - There has been proliferation of innovation and industry, and citizens who can feed themselves. - All children and youth manifesting our shared belief that they are the cornerstone of the future. - Participatory local development action is driven by committed, capable citizens and conscientious institutional agents. The 2030 vision notes that the sustainable future for the Eastern Cape rests on a people-centred development to achieve five related goals as agreed by all stakeholders involved in the process to develop this plan. These goals are: The provincial development plan (PDP) identifies five goals, namely: - Goal 1: A growing, inclusive and equitable economy. - Goal 2: An educated, empowered, and innovative citizenry. - Goal 3: A healthy population. - Goal 4: Vibrant and equitably enabled communities. - Goal 5: Capable, conscientious, and accountable institutions. The relevant goals are listed below. <u>Goal 1: A growing, inclusive and equitable economy</u> The PDP promotes a growing, inclusive, and equitable economy. This includes a larger and more efficient provincial economy that optimally exploits the competitive advantages of the Eastern Cape, increased employment and reduced inequalities of income and wealth. The economic goal will be achieved through five strategic objectives, of which improved economic infrastructure that promotes new economic activity and development of high potential economic sectors are of relevance to the project.

[4] The Western Cape Guidelines on Need and Desirability have been considered in this instance, as there are no specific guidelines applicable to the North West Province.

In terms of improved economic infrastructure, the PDP notes that this includes positioning the Eastern Cape as a key investment hub in the energy sector and ensuring reliable energy supplies to high potential sectors. Strategic Action 1.1.6 notes that the province is positioning itself as an investment hub in the energy sector (wind farms, imported liquefied natural gas, shale-gas, and nuclear energy). This will provide opportunities to develop the capital goods sector and heavy industries.

The rapid development of high-potential economic sectors includes the energy sector with the aim of developing the province as an energy hub. Tourism is also identified as a key sector, including eco-tourism.

Goal 4: Vibrant and equitably enabled communities
Strategic objective 4.3 seeks to ensure universal access to adequate, reliable, and basic infrastructure for all by 2030.Linked to this Strategic Action, 4.3.2 outlines the requirements to ensure adequate energy infrastructure for household and public facility access and universal access to energy by 2030. The development of renewable energy hubs for remote rural areas are a potential solution, using solar, wind and biomass/biogas is identified as means to achieving this.

The PDP also identifies four catalytic flagships that are aimed at meeting the development goals and addressing the socio-economic challenges facing the province. The following are relevant to the project.

Infrastructure
The third catalytic flagship focuses on the provision and maintenance of infrastructure, including energy infrastructure. The initiative also aims to encourage private sector investment in infrastructure and develop appropriate technology. The project creates the opportunity for private sector investment in renewable energy infrastructure.

Ilima labantu
Ilima labantu is an agricultural development initiative that aims to revive the rural economy and encourage other areas of development in the province. The Eastern Cape is endowed with significant natural resources that can be used to help address its food security needs, expand its capacity to provide jobs, raise income levels and trigger development in allied industries and other sectors. The establishment of Community Trusts associated with the project creates opportunities to support agricultural development in rural areas.

Ematholeni!
Ematholeni! (children first!). The focus is on creating and improving education opportunities and facilities in the Eastern

		Cape, starting with better-coordinated early childhood development (ECD). The establishment of Community Trusts associated with the project creates opportunities to support education programmes in rural areas.
Should the development occur here at this point in time?	Yes	The proposed PV facility is to be located outside the Komani urban edge, and within a legislated REDZ. It is also extremely close to a point of connection where sufficient transmission capacity is currently available to evacuate power into the National Grid. The National Grid has existing excess capacity in order to accommodate the development right away (thus reducing the opportunity costs).
Does the community / area need the activity and the associated land use concerned?	Yes	The Enoch Mgijima Local Municipality identified the opportunity for a renewable energy projects through their SDF and IDP processes, which include public participation. The proposed PV development will allow for a diversification of employment, skills and contribute to the potential development of small business associated with its construction, operation and maintenance activities. The proposed PV development will contribute electricity to the constrained Eastern Cape and National electrical network, contributing to a provincial and national need. This development has been designed in such a way so as to avoid or minimise potential negative impacts of the local environment while enhancing potential positive impacts, locally and regionally.
Are the necessary services with adequate capacity currently available?	partially	The proposed PV facility requires the installation of an of a very short loop in – loop out Powerline and the upgrade of an existing access road. The cost of supplying this new infrastructure is borne by the Applicant, and the impacts thereof have been assessed in this environmental process. The water required for the construction and operation of the facility will be sourced from the Enoch Mgijima Local Municipality (preferred option) and will be supplemented by stored rainwater. The applicant may at a later stage consider the utilisation of groundwater to supplement this supply, this will however be subject to approval in terms of the National Water Act. Construction waste (general waste) will be disposed of at the existing landfill sites. Defunct and damaged modules identified

		during construction will be returned to the supplier for recycling and/or disposal.
Is this development provided for in the infrastructure planning of the municipality?	Yes	Yes. Attracting private investment and the employment opportunities associated with renewable energy development are identified as priority strategies to create sustainable urban and rural settlements.
Is this project part of a national programme to address an issue of national concern or importance?	Yes	In order to meet the increasing power demand within South Africa, Eskom has set a target of 30% of all new power generation to be derived from independent power producers (IPPs). The Applicant is one such IPP which intends to generate up to 30MW of electricity from the proposed PV facility, for input into the national grid (via the existing Eskom Tsolwana-Komani 66kV powerline).

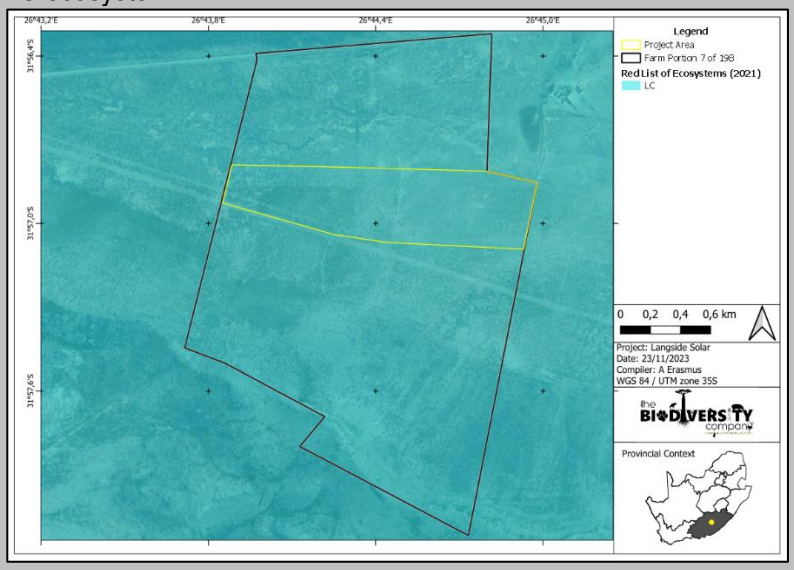
7. Desirability (place)

In accordance with the guidelines on need and desirability, a project should be able to answer a series of questions to demonstrate desirability. These are highlighted in the table below:

Table 2: Project Desirability Analysis

Desirability	**Discussion**	
Is the development the best practicable environmental option for this land / site?	Yes	The target property is outside the Komani Urban Edge, in very close proximity to the existing Eskom Tsolwana-Komani 66kV powerline The affected property has a relatively poor agricultural potential due to various limiting factors. These factors have rendered the property vacant with minimal agriculture (mostly grazing of Cattle) and limited other land use alternatives. Considering these factors, it is very unlikely to be considered for an alternative land use such as urban development. The property is not within an area earmarked for the expansion of protected areas, nor does the footprint contain any unique biodiversity features. The area is thus unlikely to be considered for conservation use.
Would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?	No	The vision of the Enoch Mgijima Municipality Integrated Development Plan is "A developmental regional economic hub which is customer focused and committed to service excellence in delivering quality and sustainable services". The mission statement to support the vision is: - Provide sustainable quality services to all our citizens efficiently and effectively. - Develop and empower all our councillors and employees with capacity building programs. - Unlocking the development potential and increase the investment opportunities.

		- Develop and implement local economic development programs for socio-economic development. The IDP lists five Key Performance Areas (KPAs) as per the criteria of the Department of Cooperative Governance and Traditional Affairs (CoGTA), namely: - KPA 1: Municipal Transformation and Organisational Development. - KPA 2: Basic service delivery and infrastructure development- community services. - KPA 3: Local Economic Development. - KPA 4: Municipal Financial Viability and Management. - KPA 5: Good Governance and Public Participation. KPA 2 and 3 are relevant to the proposed development. The IDP also notes that the EMM LM is guided by the following 11 (eleven) priorities, as highlighted by the governing party's Local Government Elections Manifesto. - Build on achievements made in delivering basic services to the people. - Improve access to municipal services and reduce outsourcing in municipalities. - Further improve public participation and accountability of councillors. - Enhance the capacity of the local state to deliver on its mandate. - Develop and strengthen local economies, create jobs, and promote job placements, especially for the youth. - Intensify the fight against fraud and corruption in local government and social fabric crimes in communities. - Promote education as the apex priority in local communities. - Improve health in urban and rural communities. - Help municipalities adapt to the changing climatic conditions. - Build spatially integrated communities. - Promote nation-building and socially cohesive communities. Based on these priorities the EMM has identified Ten (10) service delivery priorities (SDPs). The following are relevant to the proposed development: - SDP01: Electricity. - SDP03: Local Economic Development. In terms of KPA 3 and SDP03, the municipality's focus areas on local economic development include:

		- Rural Development and Agrarian Reform 1.1. Village secondary cooperative movement and village-based commodity primary cooperative movement. - Township Economies through small business centre and spatial planning. - SMME and Cooperatives Development. - Tourism and heritage development. - Investment Promotion, Industrial development, economic growth, and Job creation. The IDP notes that the area is also the home of tourism and hunting and there are in the region of 20 game reserves. In terms of renewable energy, wind farms exist in the Sterkstroom and Molteno area.
Would the approval of this application compromise the integrity of the existing approved environmental management priorities for the area?	unlikely	The Red List of Ecosystems' Ecosystem Threat Status is an indicator of an ecosystem's wellbeing, based on the level of change in structure, function or composition. Ecosystem types are categorised as Critically Endangered (CR), Endangered (EN), Vulnerable (VU) or Least Concern (LC), based on the proportion of the original extent of each ecosystem type that remains in good ecological condition. According to the spatial dataset the proposed project overlaps with a LC ecosystem.  **Figure 13:** Map illustrating the ecosystem threat status associated with the project area (The Biodiversity Company, 2023) The Biodiversity Specialist has confirmed that average post-mitigation impact significance for the project is moderately low and concluded that the project may be favourably considered from a Biodiversity perspective, on condition that all prescribed mitigation measures are implemented.

Do location factors favour this land use at this place?	Yes	The ecological sensitive areas on and surrounding the solar site have informed the optimal location and layout for the proposed solar project, with minimal impact to the receiving environment, subject to implementation of mitigation measures. The ecological suitability of the site and the proximity of existing grid connection infrastructure with sufficient capacity to evacuate power from the facility is one of the most significant location factors at the site.
How will the activity or the land use associated with the activity applied for, impact on sensitive natural and cultural areas?	Yes	The position considered for the solar development have been iteratively designed and informed by various investigations and assessments that considered both the natural and cultural landscapes. All natural and culturally sensitive areas have been identified and avoided to prevent negative impacts on such areas.
How will the development impact on people's health and wellbeing?	Yes	The site is located outside of the Komani Urban Edge and as a result is unlikely to impact negatively on the community's health and wellbeing.
Will the proposed activity or the land use associated with the activity applied for, result in unacceptable opportunity costs?	Unlikely	The next best land use alternative to the solar facility is limited agriculture (the status-quo). However, the proposed development site does not have any significant agricultural value and has not been utilised for any intensive agricultural purposes during recent times. The economic benefits and opportunities that the proposed solar development holds for the landowner and the local economy of the municipal area cannot be recovered from the current or potential agricultural activities. The opportunity costs in terms of the water-use requirements of the PV development are within acceptable bounds if one considers the minimal demand on the resource.
Will the proposed land use result in unacceptable cumulative impacts?	Unlikely.	Due to the close proximity of Grid Connection Infrastructure and the position within a renewable energy development zone, the potential for further, future solar developments in the area cannot be discounted. However, these will have synergistic benefits for the economy and growth of the area, while the contribution to cumulative habitat loss in the area associated with this and potential future solar development would be relatively small in relation to the land resources available, with low impacts restricted to the local area.

Indicate any benefits that the activity will have for society in general:

Please refer to the Social Impact Assessment Appendix D from which the following has been summarized.

Green Jobs Study

The study notes that South Africa has one of the most carbon-intensive economies in the world, therefore making the greening of the electricity mix a national imperative. Within this context the study notes that the green economy could be an extremely important trigger and lever for enhancing a country's growth potential and redirecting its development trajectory in the 21st century. The attractiveness of wind and solar technologies is not only supported by local conditions, but also by the relatively mature stage of their technological development.

The aim of the Green Jobs study was to provide information on the net direct job creation anticipated to emerge in the formal economy across a wide range of technologies/activities that may be classified as green or contributing to the greening of the economy. The study looked at the employment potential for a number of green sectors, including power generation, over three consecutive timeframes, namely, the short term (2011 – 12), medium term (2013 – 17) and long term (2018 – 25). The analysis attempts to estimate the employment potential associated with: building, construction and installation activities; operations and maintenance services; as well as the possible localisation spin-offs for the manufacturing sector as the domestic production of equipment, parts and components benefits from preferential local procurement. It is also worth noting that the study only considered direct jobs in the formal economy. Multiplier effects were not taken into account. As a result, the analysis only captures a portion of the potential employment impact of a greening economy. International studies have indicated that there are considerable backward and forward linkages through various value chains of production, as well as of indirect and induced employment effects. The employment figures can therefore be regarded as conservative.

The analysis reveals the potential of an unfolding green economy to lead to the creation of approximately 98 000 new direct jobs, on average, in the short term, almost 255 000 in the medium term and around 462 000 employment opportunities in the formal economy in the long term. The number of jobs linked to the power generation was estimated to be ~ 12 500 in the short term, 57 500 in the medium term and 130 000 in the long term. Power generation jobs therefore account for 28% of the employment opportunities created in the long term. However, the report notes that the contribution made by a progressively expanding green energy generation segment increases from 14% of the total in the short term, or just over 13 500 jobs, to more than 28% in the long term (166 400) (Table 2.1). The study also found that energy generation is expected to become an increasingly important contributor to green job creation over time, as projects are constructed or commissioned.

Of relevance the study also notes that the largest gains are likely to be associated with operations and maintenance (O&M) activities, particularly those involved in the various natural resource management initiatives. In this regard, operations and maintenance employment linked to renewable energy generation plants will also be substantial in the longer term. The employment growth momentum related to building, construction and installation activities peaks in the medium term, largely propelled by mass transportation infrastructure, stabilising thereafter as green building methods become progressively entrenched.

In addition, as projects related to a greening economy are progressively commissioned, the potential for local manufacturing also become increasingly viable. Employment gains in manufacturing are also expected to be relatively more stable than construction activities, since the sector should continue exhibiting growth potential as new and replacement components are produced, as additional markets are penetrated and as new green technologies are introduced. Manufacturing segments with high employment potential in the long term would include suppliers of components for wind and solar farms. The study does note that a shortage of skills in certain professional fields pertinent to renewable energy generation presents a challenge that must be overcome.

The study also identifies a number of advantages associated with renewable energy with a large 'technical' generation potential. In this regard, renewable energy, such as solar and wind, does not emit carbon dioxide (CO_2) in generating electricity and is associated with exceptionally low lifecycle emissions. The construction period for renewable energy projects are much shorter than those of conventional power stations, while an income stream may, in certain instances, be provided to local communities through employment and land rental.

The study also notes that the greenhouse gases (GHG) associated with the construction phase are offset within a short period of time compared with the project's lifespan. Renewable power therefore provides an ideal means for reaching emission reduction targets in a relatively easy manner. In addition, and of specific relevance to South Africa, renewable energy source is not dependent on water (as compared to the massive water requirements of conventional power stations), has a limited footprint and therefore does not impact on large tracts of land, poses limited pollution and health risks, specifically when compared to coal and nuclear energy plants.

Of relevance, the study also notes that renewable energy projects in rural areas create an opportunity to benefit the local and regional economy through the creation of jobs and tax revenues.

Powering the Future: Renewable Energy Roll-out in South Africa

The study notes that South Africa has higher CO2 emissions per GDPppp (2002 figures) from energy and cement production than China or the USA (Letete, T et al). Energy accounts for 83% of the total GHG emissions (excluding land use, land use change and forestry) with fuel combustion in the energy industry accounting for 65% of the energy emissions of South Africa (DEA, 2011).

Within a broader context of climate change, coal energy does not only have environmental impacts, it also has socio-economic impacts. Acid mine drainage from abandoned mines in South Africa impacts on water quality and poses the biggest threat to the country's limited water resources. Huge volumes of water are also required to wash coal and cool operating power stations. Eskom uses an estimated 10 000 litres of water per second due to its dependency on coal (Greenpeace, 2012).

The report notes that the concerns relating to whether South Africa can afford renewable energy arise out of the perception that renewable energy (RE) is expensive while fossil and nuclear technologies are cheap. The premise also ignores life cycle costing of the technologies which is favourable to renewable technologies where the sources of fuel are free or cheap.

WWF SA Renewable Energy Vision 2030

In its vision the WWF motivated for a more ambitious plan, suggesting that the IRP should provide for an 11-19% share of electricity capacity by 2030, depending on the country's growth rate over the next fifteen years. The vision is to increase renewable energy at the expense of new coal-fired and nuclear capacity. The report notes that in addition to the obvious environmental benefits of this scenario, it will enable South Africa to add flexibility to energy supply capacity on an on-demand basis.

The report notes that Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) introduced in 2011, has by all accounts been highly successful in quickly and efficiently delivering clean energy to the grid. Increasingly competitive bidding rounds have led to substantial price reductions. In this regard, the study indicates that in three years, wind and solar PV have reached pricing parity with supply from new coal-fired power stations from a levelised cost of electricity (LCOE) perspective.

In bidding window 3 of August 2013, the average tariffs bid for wind and solar PV were R0,66/kWh and R0.88/kWh respectively, well below the recent estimates of R1.05/kWh for supply from the coal-fired Medupi and Kusile power stations (Papapetrou 2014).

The report also notes that the REIPPPP has several contracting rounds for new renewables supply. A robust procurement process, extension of a 20-year sovereign guarantee on the power purchase agreement (PPA) and, especially, ideal solar power conditions, have driven the investment case for RE in South Africa. In this regard, South Africa has been identified as one of the worlds' leading clean energy investment destinations.

The WWF study considers a low and high growth renewable energy scenario. The capital requirements for the low growth scenario are estimated at R474 billion over the period 2014-2030 (2014 Rand value), rising to R1.084 trillion in the high-growth scenario, in which 35 GW of capacity is built. Each annual round of purchasing 2 200 MW of RE capacity would cost approximately R77 billion in 2014 Rand value terms. In relative economic terms, this equates to 2% of the GDP per annum or approximately one quarter of Government's planned annual investment in infrastructure over the medium term. In the low economic growth scenario, which is arguably the more realistic one, the average annual new liability over the period is approximately R40 billion.

The study also points out that infrastructure spend is more beneficial than other government expenditure due to the infrastructure multiplier effect. This refers to the beneficial impact of infrastructure on economic growth in both the short term, resulting from expansion in aggregate demand, as well as in the longer term (six to eight years) due to enhanced productive capacity in the economy. A recent USA study on highway expenditure revealed the infrastructure multiplier to be a factor of two on average, and greater during economic downturns (Leduc & Wilson 2013). This means that one dollar spent on infrastructure raises GDP by two dollars. If the same were to hold true, as similar analysis suggests it would (Kumo 2012, Ngandu et al 2010), this indicates that the construction of renewable energy plants could be a valuable economic growth driver at a time when fears of recession abound.

The report concludes that the WWF is optimistic that South Africa can achieve a much more promising clean energy future than current plans allow for. With an excellent solar resource and several good wind-producing pockets, the country is an ideal candidate for a renewable energy revolution.

The report indicates that the levelised cost of producing renewable energy already competes favourably with the three main alternatives, namely coal, gas and nuclear. In addition, renewable energy would contribute to a more climate-resilient future and insulate South Africa from dependence on expensive and unreliable fuel sources priced in dollars. Critical from a planning perspective, the report notes that renewable energy can also provide added flexibly on an 'as needed' basis, as electricity demand grows. This is vital in a highly uncertain environment.

The impact of the green economy on jobs in South Africa

The paper notes that greening the economy is particularly important in South Africa for two basic reasons: (1) the exceptional level of unemployment that the country is experiencing and (2) the high carbon impact of the economy.

In terms of employment, the paper refers to the IDC Green Jobs Report (2011). In summary, the short-term (next 2 years) estimate of total net employment potential is 98 000 jobs, and the long-term (next 8 years) employment potential is 462 567 jobs. Natural resource management is predicted to lead to the greatest number of these at 232 926 long-term jobs. Green energy generation is estimated to produce 130 023 long-term jobs, with energy and resource efficiency measures adding another 67 977 long-term jobs.

The paper notes that the Green Jobs Report was prepared by seventeen primary researchers from three prominent organisations, namely the IDC, the Development Bank of South Africa, and Trade and Industrial Policy Strategies. Many role players from other organisations were also consulted, including the World Wide Fund for

Nature, the Green Building Council, the Economic Development Department and private companies involved in green industries.

Despite questions surrounding the employment estimates contained in the Green Jobs Report, green economic activity does appear to generate more local jobs than fossil-fuel-based industries. Some of the estimates also indicate the potential for significant employment. The paper concludes that the figures represent a promising starting point that warrants further research and policy involvement in greening the economy in South Africa.

Indicate any benefits that the activity will have for the local communities where the activity will be located:

In her thesis (The potential for local community benefits from wind farms in South Africa, Louise Tait (2012), Master's Thesis, Energy Research Centre University of Cape Town), Tait notes that the distributed nature of renewable energy generation can induce a more geographically dispersed pattern of development. As a result, RE sites can be highly suited to rural locations with otherwise poor potential to attract local inward investment therefore enabling to target particularly vulnerable areas.

In her conclusion, Tait notes that the thesis has found positive evidence for the establishment of community benefit schemes in the wind sector in South Africa. These benefits would also apply to solar projects. The BBBEE requirements for developers as set out in the DoE's IPPPP for renewables is the primary driver for such schemes. The procurement programme, in keeping with the objective of maximising the economic development potential from this new sector, includes a specific focus on local communities in which wind farms are located.

The procurement programme, typical of all Government tendering processes, includes a BBBEE scorecard on which renewable energy projects are evaluated. However, the renewables scorecard appears to play an important part in a renewed focus on the broad-based Aspects of the legislation, as enforced by a recent national review of the BBBEE Act. In this regard, the renewables scorecard includes specifications for local communities in respect of broad-based ownership schemes, socio--economic development and enterprise development contributions. This approach to legislating social responsibilities of business in all sectors definitely has a South African flavour, borne out of the political history of the country and the imperatives for social transformation laid out in the constitution.

While Tait notes that it is still early days for the development of this sector and one cannot determine the impact that such benefit schemes may have, it is clear though that targeted development expenditure will be directed to multiple rural communities and there seems to be a strong potential to deliver socio-economic benefits.

The social specialist conformed that the creation of employment and business opportunities, and opportunity for skills development and on-site training would have a medium positive impact in the local context

10. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations, if applicable:

Title of legislation, policy or guideline:	Administering authority:	Date:

NATIONAL LEGISLATION

The Constitution of the Republic of South Africa

The Constitution of the Republic of South Africa (Act 108 of 1996) states that everyone has a right to a non-threatening environment and that reasonable measure are applied to protect the environment. This includes preventing pollution and promoting conservation and environmentally sustainable development, while promoting justifiable social and economic development.

The Constitution and Bill of Rights provides that:

Everyone has the right:

- to an environment that is not harmful to their health or well-being; and
- to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures:
    - prevent pollution and ecological degradation
    - promote conservation; and
    - secure ecologically sustainable development and the use of natural resources while promoting justifiable economic and social development.

NEMA (discussed below) is the enabling legislation to ensure this primary right is achieved

National Environmental Management Act (NEMA)

The current assessment is being undertaken in terms of the **National Environmental Management Act** (NEMA, Act 107 of 1998)[5] . This Act makes provision for the identification and assessment of activities that are potentially detrimental to the environment and which require authorisation from the competent authority (in this case, the national Department of Forestry, Fisheries and the Environment, (DFFE) based on the findings of an Environmental Assessment.

The proposed development entails a number of listed activities, which require a **Scoping & Environmental Impact Reporting (S&EIR) process**, which must be conducted by an independent environmental assessment practitioner (EAP). The project however falls within a Renewable Energy Development Zone and as such is subjected to a **Basic Assessment Process (BAR)**. Cape EAPrac has been appointed to undertake this process. The figure below depicts a summary of the BAR process.

[5] The Minister of Water and Environmental Affairs promulgated new regulations in terms of Chapter 5 of the National Environmental Management Act (NEMA, Act 107 of 1998), viz, the Environmental Impact Assessment (EIA) Regulations 2014 (as amended in April 2017). These regulations came into effect on 08 December 2014 (amended on 07 April 2017) and replace the EIA regulations promulgated in 2006 and 2010.

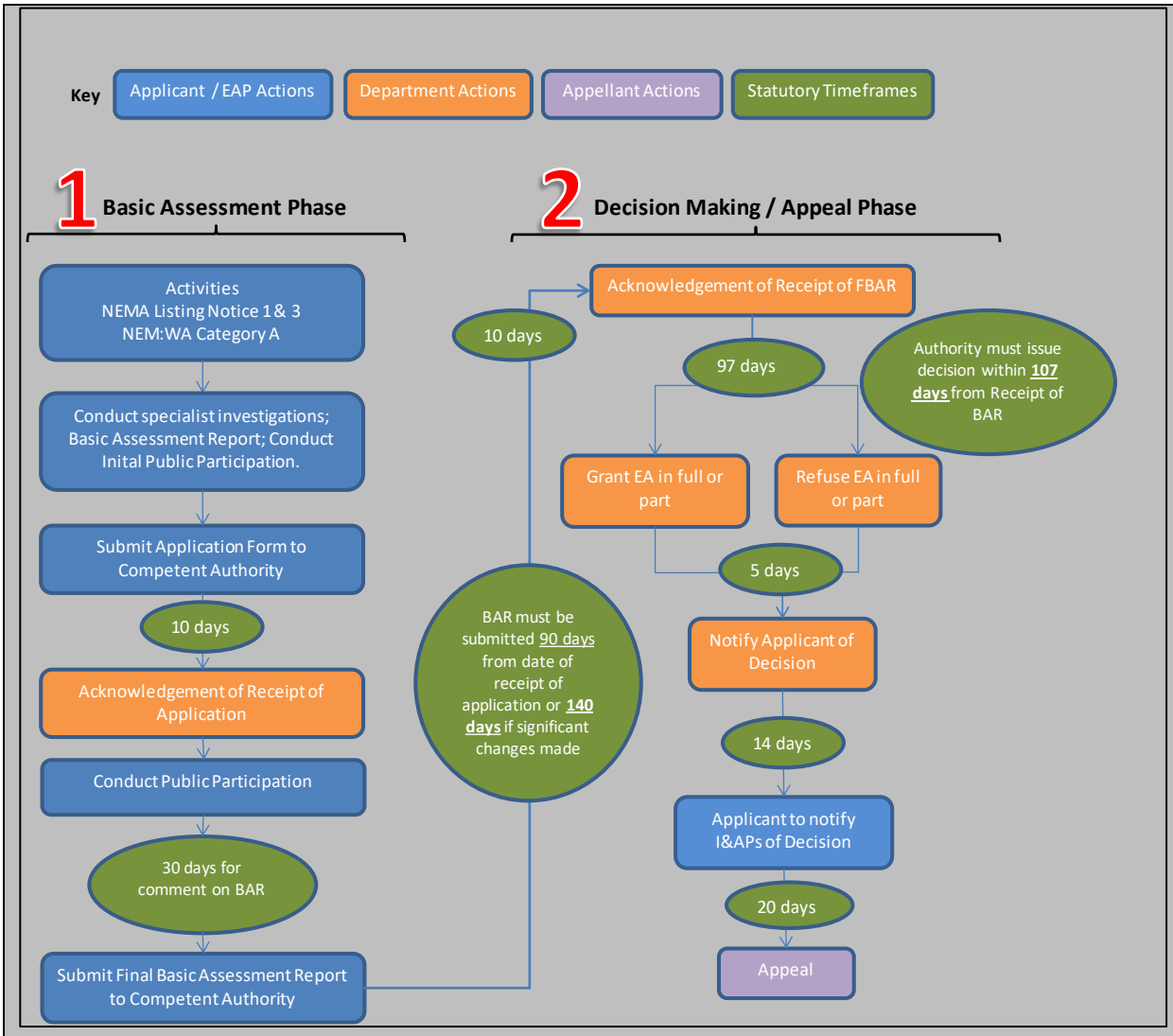


Figure 14: Summary of Basic Assessment Process in terms of the 2014 Regulations as amended.

The listed activities associated with the proposed development, as stipulation under 2014 Regulations **327, 325 and 324** are as follows:

Table 3: NEMA 2014 (As amended in April 2017) listed activities applicable to Langside Renewable Energy Facility.

Activity	Description
GN R 983 Activity 11(i): The development of facilities or infrastructure for the transmission and distribution of electricity— (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts;	The IPP Substation for the Langside Renewable Energy Facility will have a capacity of up to 66 kilovolts.
GN R 983 Activity 12(ii)(a) & (c): The development of— (ii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs—	The existing main access road to the site crosses a non perineal watercourse. This existing access road will be upgraded and the extent of the upgrades will exceed 100 square metres within 32 metres of the watercourse.

(a) within a watercourse; (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;	
GN R 983 Activity 19: The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse.	The existing main access road to the site crosses a non perineal watercourse. This existing access road will be upgraded and more than 10 cubic metres of soil within the watercourse will be moved as part of this upgrade..
GN R 983 Activity 28 (i): Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development: (i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares;	The proposed Langside Renewable Energy Facility is considered to be an industrial / commercial development with a total development footprint of approximately 85ha.
GN R 983 Activity 56 (ii): The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre— (ii) where no reserve exists, where the existing road is wider than 8 metres;	The existing access will be upgraded, which will include widening. Some portions of this existing access will be widened by more than 6 metres, to a maximum width of 10 metres. Some portions of the existing access road, most notably at the intersection with the R61 is wider than 8 metres.
GN R 984 Activity 1: The development of facilities or infrastructure for the generation of electricity from a renewable resource where the electricity output is 20 megawatts or more.	The proposed Langside Renewable Energy Facility will have a generation capacity of up to 30 megawatts.
GN R 984 Activity 15: The clearance of an area of 20 hectares or more of indigenous vegetation	The proposed Langside Renewable Energy Facility will have a total development footprint of approximately 85ha.
GN R 985 Activity 18(a)(i)(ii) &(kk): The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre, a. Eastern Cape, i. Outside urban areas: (ii) Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse where no such setback line has been determined; (kk) A watercourse; or	The existing access road to the proposed facility crosses a non perineal river. This access road will be widened by more than 4m.

Before any of the above mentioned listed activities can be undertaken, authorisation must be obtained from the relevant authority, in this case the Eastern Cape Department of Economic Development, Environmental Affairs and Tourism. Should the Department approve the proposed activity, the Environmental Authorisation does not exclude the need for obtaining relevant approvals from other Authorities who have a legal mandate in respect of the proposed development.

National Environmental Management: Biodiversity (ACT 10 OF 2004)

The National Environmental Management: Biodiversity Act (Act 10 of 2004) (NEMBA) provides for listing threatened or protected ecosystems, in one of four categories: critically endangered (CR), endangered (EN),

vulnerable (VU) or protected. The Draft National List of Threatened Ecosystems (Notice 1477 of 2009, Government Gazette No 32689, 6 November 2009) has been gazetted for public comment.

The list of threatened terrestrial ecosystems supersedes the information regarding terrestrial ecosystem status in the NEMBA 2004. In terms of the EIA regulations, a basic assessment report is required for the transformation or removal of indigenous vegetation in a critically endangered or endangered ecosystem if more than 300 square metres are transformed..

NEMBA also deals with endangered, threatened and otherwise controlled species. The Act provides for listing of species as threatened or protected, under one of the following categories:

- **Critically Endangered**: any indigenous species facing an extremely high risk of extinction in the wild in the immediate future.
- **Endangered**: any indigenous species facing a high risk of extinction in the wild in the near future, although it is not a critically endangered species.
- **Vulnerable**: any indigenous species facing an extremely high risk of extinction in the wild in the medium-term future; although it is not a critically endangered species or an endangered species.
- **Protected species**: any species which is of such high conservation value or national importance that it requires national protection. Species listed in this category include, among others, species listed in terms of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

According to the Terrestrial Ecology Specialist, the project does not traverse any threatened or protected ecosystem.

Certain activities, known as Restricted Activities, are regulated by a set of permit regulations published under the Act. These activities may not proceed without environmental authorization.

According to Mucina and Rutherford (2006) Queenstown Thornveld is classified as **Least Threatened**. Although the target for conservation is 23%, only 1% of this vegetation type is currently under statutory conservation in the Tsolwana Nature Reserve. Urbanisation and to a lesser extend cultivation have resulted in the transformation of approximately 10% of Queenstown Thornveld. Overgrazing in this vegetation unit is serious, especially by goats near urban areas. Indices of erosion are moderate to low and very low (Mucina & Rutherford, 2006).

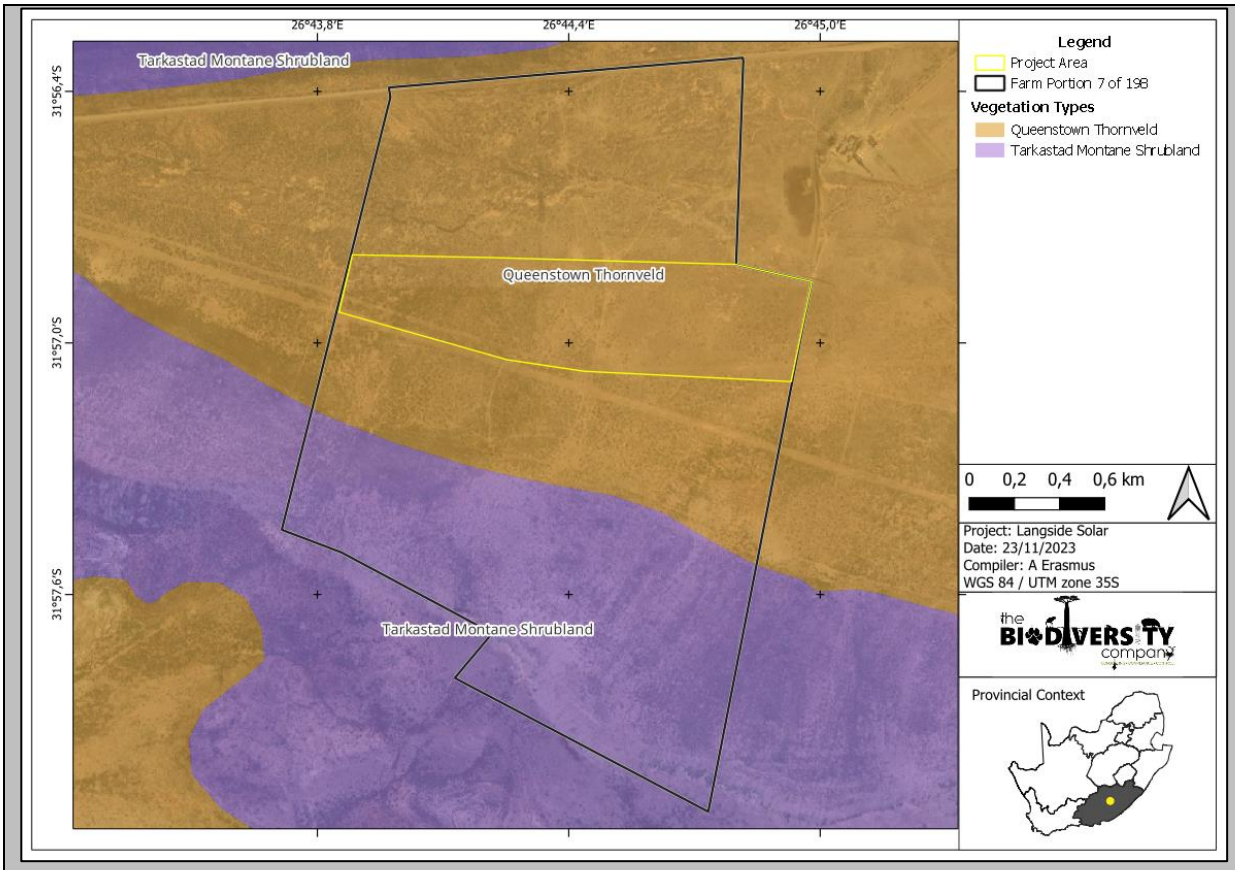


Figure 15: Vegetation on and in proximity to the Langside Renewable Energy Facility, showing that the facility falls within the Queenstown Thornveld vegetation type, which is considered as Least Threatened. (The Biodiversity Company, 2023)

National Environmental Protected Areas Act (NEMPAA) (Act 57 or 2003)

The National Environmental Management: Protected Areas Act 57 of 2003 intends to provide for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes.

It furthermore provides for the establishment of a national register of all national, provincial and local protected areas.

The Terrestrial Biodiversity Specialist has confirmed that according to the protected area spatial datasets from SAPAD (2021) and SACAD (2021), the project area does not overlap with any protected areas or conservation areas. The nearest protected area is the Lawrence De Lange Nature Reserve located approximately 10.22 km south-west from the site.

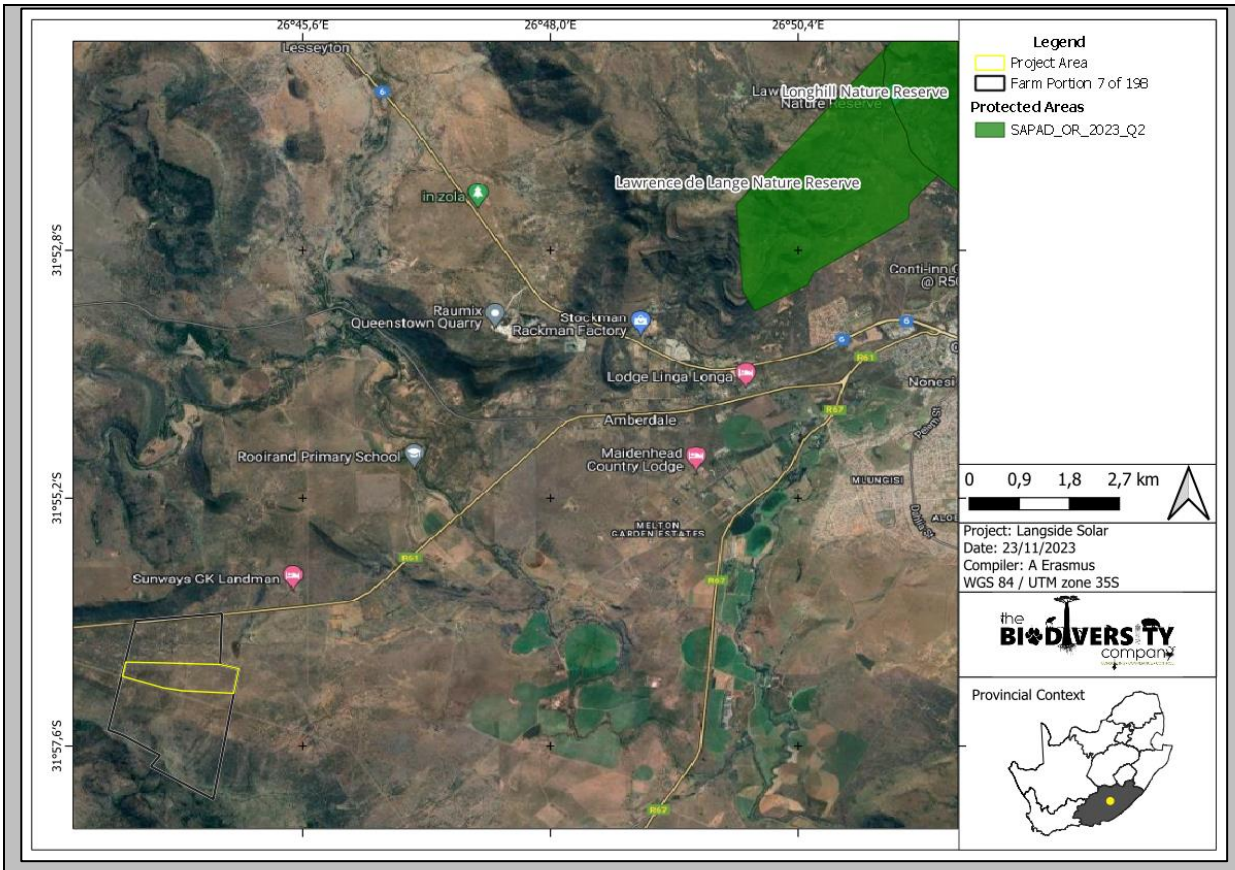


Figure 16: Protected areas in proximity to Langside Renewable Energy Facility (The Biodiversity Company, 2023).

National Protected Area Expansion Strategy (NPAES) for S.A. 2008 (2010)

Considering that South Africa's protected area network currently falls far short of sustaining biodiversity and ecological processes, the NPEAS aims to achieve cost-effective protected area expansion for ecological sustainability and increased resilience to Climate Change. Protected areas, recognised by the National Environmental Management: Protected Areas Act (Act 57 of 2003), are considered formal protected areas in the NPAES. The NPAES sets targets for expansion of these protected areas, provides maps of the most important protected area expansion, and makes recommendations on mechanisms for protected area expansion.

The NPAES identifies 42 focus areas for land-based protected area expansion in South Africa. These are large intact and un-fragmented areas suitable for the creation or expansion of large protected areas. The project area does not overlap with any NPAES. The closest NPAES is 39 km from the project.

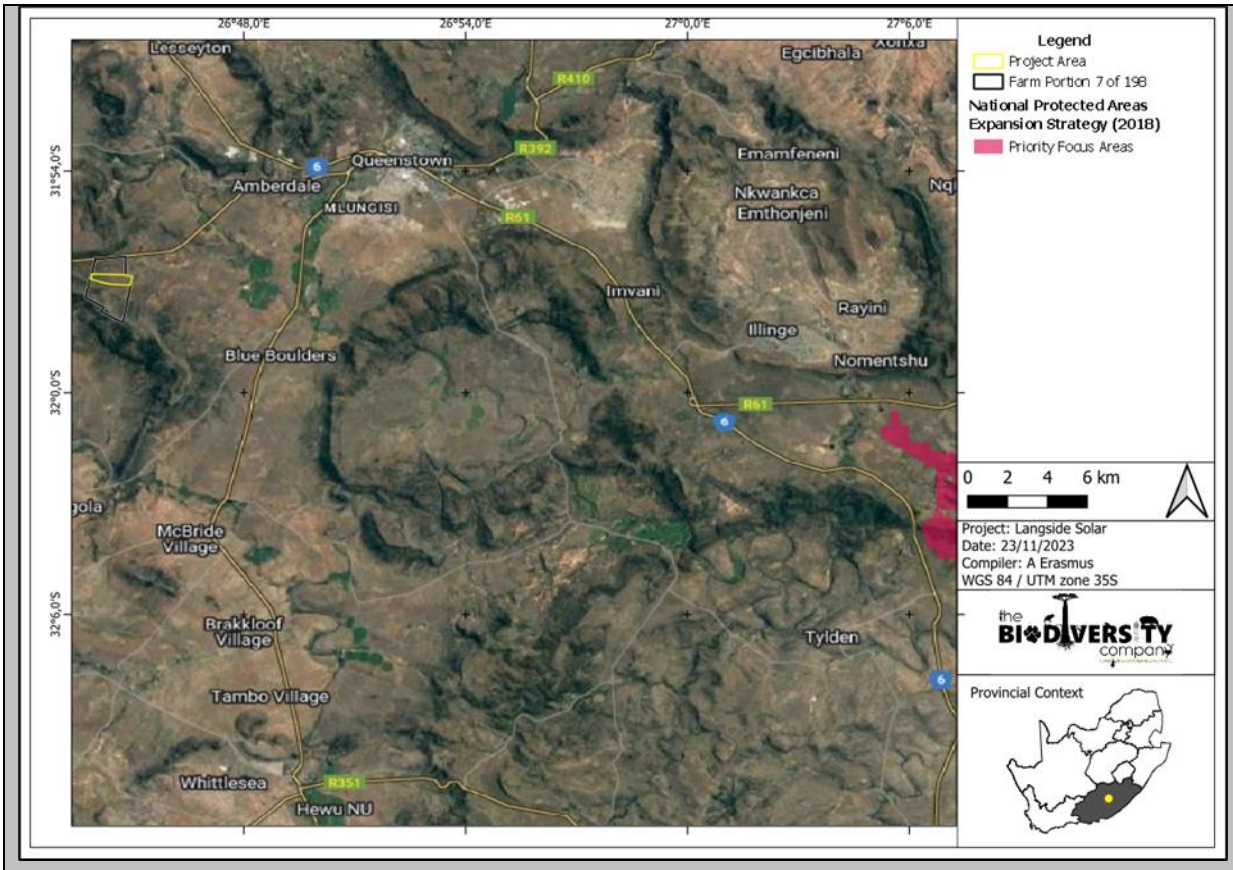


Figure 17: Showing the proximity of the Langside Renewable Energy Facility to the closest NPAES Focus Area (The Biodiversity Company, 2023)

National Forests Act (No. 84 of 1998):

The National Forests Act provides for the protection of forests as well as specific tree species, quoting directly from the Act: "*no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree or any forest product derived from a protected tree, except under a licence or exemption granted by the Minister to an applicant and subject to such period and conditions as may be stipulated".*

The Terrestrial Biodiversity Specialist did not identify any species protected in terms of the National Forest Act) on the site.

Conservation of Agricultural Resources Act – CARA (Act 43 of 1983):

CARA provides for the regulation of control over the utilisation of the natural agricultural resources in order to promote the conservation of soil, water and vegetation and provides for combating weeds and invader plant species. The Conservation of Agricultural Resources Act defines different categories of alien plants:

- Category 1 - prohibited and must be controlled;
- Category 2 – must be grown within a demarcated area under permit; and

- Category 3 - ornamental plants that may no longer be planted, but existing plants may remain provided that all reasonable steps are taken to prevent the spreading thereof, except within the flood lines of water courses and wetlands.

Two invasive alien species were recorded within the project area, they were Opuntia ficus-indica and Solanum marginatum. These species are listed under the Alien and Invasive Species List 2021, Government Gazette No. 44182 as Category 1b and Category 2. Category 1b species must be controlled by implementing an IAP Management Programme, in compliance of section 75 of the NEMBA.

It is also important to consider Article 7.(3)b of Regulation 9238: CONSERVATION OF AGRICULTURE RESOURCES, 1983 (Act 43 of 1983) which deals with the utilisation and protection of vleis, marshes, water sponges and water courses and states:

- 7.(1) "no land user shall utilize the vegetation in a vlei, marsh or water sponge or within the flood area of a water course or within 10 meters horizontally outside such flood area in a manner that causes or may cause the deterioration of or damage to the natural agriculture resources."
- (3)(b) "cultivate any land on his farm unit within the flood area of a water course or within 10 meters horizontally outside the flood area of a water course".

A freshwater assessment was undertaken on the total project area. A small drainage feature was identified along the existing access road and the sensitivity of this feature was deemed Low sensitivity.

National Heritage Resources Act

The protection and management of South Africa's heritage resources are controlled by the National Heritage Resources Act (Act No. 25 of 1999). South African National Heritage Resources Agency (SAHRA) is the enforcing authority in the Northwest Province, and is registered as a Stakeholder for this environmental process.

In terms of Section 38 of the National Heritage Resources Act, SAHRA will comment on the detailed Heritage Impact Assessment (HIA) where certain categories of development are proposed. Section 38(8) also makes provision for the assessment of heritage impacts as part of an EIA process.

The National Heritage Resources Act requires relevant authorities to be notified regarding this proposed development, as the following activities are relevant:

- the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
- any development or other activity which will change the character of a *site* exceeding 5 000 m² in extent;
- the re-zoning of a site exceeding 10 000m^2 in extent.

Furthermore, in terms of Section 34(1), no person may alter or demolish any structure or part of a structure, which is older than 60 years without a permit issued by the SAHRA, or the responsible resources authority.

Nor may anyone destroy, damage, alter, exhume or remove from its original position, or otherwise disturb, any grave or burial ground older than 60 years, which is situated outside a formal cemetery administered by a local authority, without a permit issued by the SAHRA, or a provincial heritage authority, in terms of Section 36 (3).

In terms of Section 35 (4), no person may destroy, damage, excavate, alter or remove from its original position, or collect, any archaeological material or object, without a permit issued by the SAHRA, or the responsible resources authority.

A Heritage Impact assessment was undertaken by CTS heritage and is appended to this BAR.

National Water Act, NO 36 OF 1998

Section 21c & i of the National Water Act (NWA) requires the Applicant to apply for authorisation from the Department of Water and Sanitation for an activity in, or within the regulated zone of a watercourse or wetland. Such an application would be required for any access road or PV infrastructure that crosses any watercourse.

The Freshwater Biodiversity Specialist (Annexure E1) has confirmed that there is a watercourse that will be crossed by the access road. The mitigated risk to this watercourse has been confirmed to be low and as such will require a General Authorisation

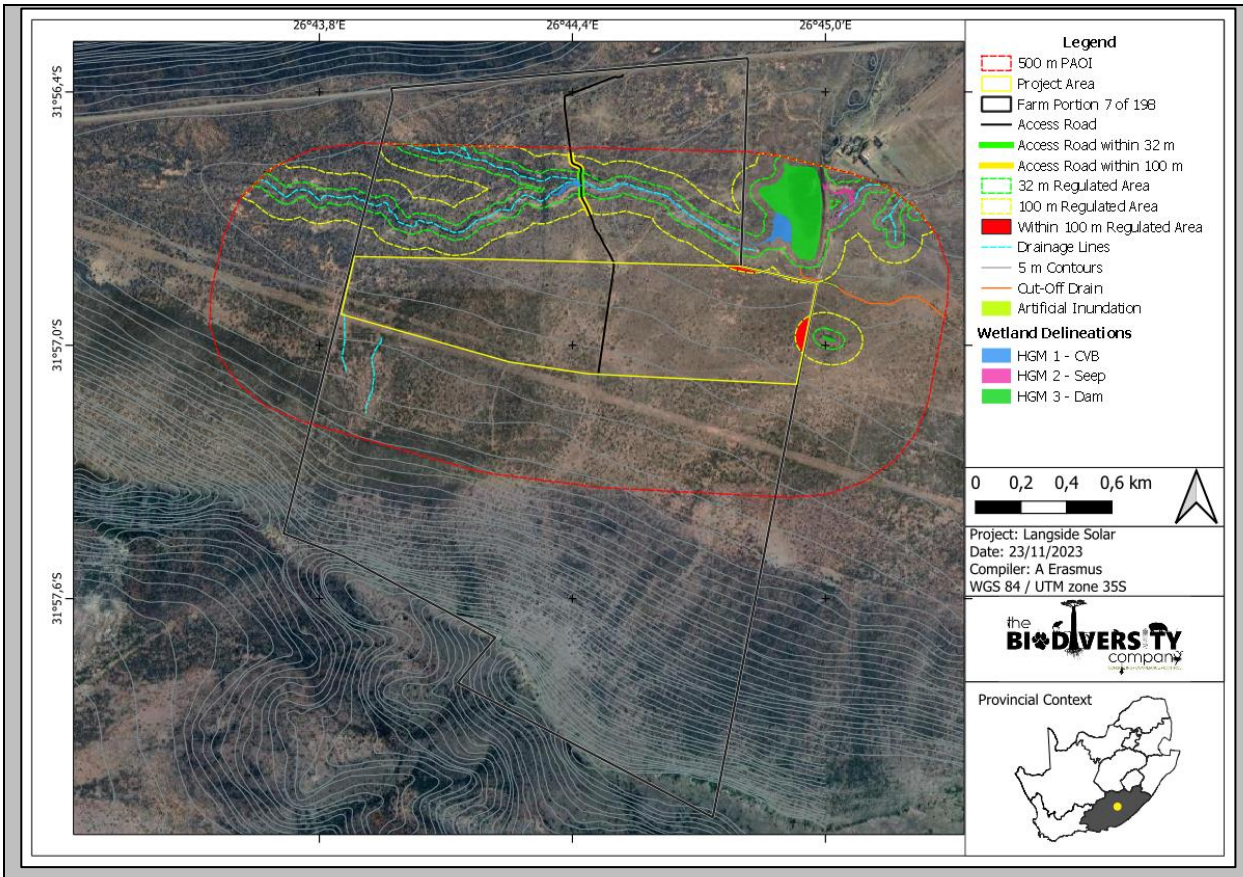


Figure 18: Portions of the Langside Renewable Energy Facility within the Regulated Areas in terms of the NWA (The Biodiversity Company, 2023)

Section 21(a) of the National Water Act is related to the abstraction of water from a water resource (including abstraction of groundwater).

Water required for the construction and operation of Langside Renewable Energy Facility is to be sourced from the Enoch Mgijima Local Municipality. In future, should the project consider abstraction from a water resource for the purposes of construction or operating of the facility, such abstraction will likely require a licence in terms of Section 21(a) of the NWA.

The Department of Water and Sanitation have been registered as a key stakeholder in this environmental process.

Astronomy Geographic Advantage Act, 2007 (Act No 21 Of 2007)

The purpose of the Act is to preserve the geographic advantage areas that attract investment in astronomy. The entire Northern Cape Province, excluding the Tsantsabane Municipality, has been declared an astronomy advantage area. The Northern Cape optical and radio telescope sites were declared core astronomy advantage areas. The Act allowed for the declaration of the Southern Africa Large Telescope (SALT),

Meerkat and Square Kilometre Array (SKA) as astronomy and related scientific endeavours that has to be protected.

The proposed PV facility is not within a declared Geographic advantage area and the closest SKA declared area is approximately 500km East of the closest SKA station (SKA133). Considering the distance, the project is unlikely to have any impact on the SKA.

The South African SKA Project Office and **SARAO** have been registered as a key stakeholder on this environmental process and have been requested to provide comment and input in terms of the Astronomy Geographic Advantage Act and potential impact to SKA.

National Energy Act (Act No 34 of 2008)

The National Energy Act was promulgated in 2008 (Act No 34 of 2008). One of the objectives of the Act was to promote diversity of supply of energy and its sources. In this regard, the preamble makes direct reference to renewable resources, including solar and wind:

"To ensure that diverse energy resources are available, in sustainable quantities, and at affordable prices, to the South African economy, in support of economic growth and poverty alleviation, taking into account environmental management requirements (…); to provide for (…) increased generation and consumption of renewable energies…"(Preamble).

White Paper on the Energy Policy of the Republic of South Africa

Investment in renewable energy initiatives, such as the proposed Langside Renewable Energy Facility, is supported by the White Paper on Energy Policy for South Africa (December 1998). In this regard, the document notes:

- "Government policy is based on an understanding that renewables are energy sources in their own right, are not limited to small-scale and remote applications, and have significant medium and long-term commercial potential".
- "Renewable resources generally operate from an unlimited resource base and, as such, can increasingly contribute towards a long-term sustainable energy future".

The support for renewable energy policy is guided by a rationale that South Africa has a very attractive range of renewable resources, particularly solar and wind and that renewable applications are in fact the least cost energy service in many cases; more so when social and environmental costs are taken into account.

Government policy on renewable energy is thus concerned with meeting the following challenges:

- Ensuring that economically feasible technologies and applications are implemented.

- Ensuring that an equitable level of national resources is invested in renewable technologies, given their potential and compared to investments in other energy supply options; and,
- Addressing constraints on the development of the renewable industry.

The White Paper also acknowledges that South Africa has neglected the development and implementation of renewable energy applications, despite the fact that the country's renewable energy resource base is extensive, and many appropriate applications exist.

The White Paper also notes that renewable energy applications have specific characteristics that need to be considered. Advantages include:

- Minimal environmental impacts in operation in comparison with traditional supply technologies; and
- Generally lower running costs, and high labour intensities.

Disadvantages include:

- Higher capital costs in some cases.
- Lower energy densities.
- Lower levels of availability, depending on specific conditions, especially with sun and wind-based systems.

White Paper on Renewable Energy

The White Paper on Renewable Energy (November 2003) (further referred to as the White Paper) supplements the White Paper on Energy Policy, which recognizes that the medium and long-term potential of renewable energy is significant. This Paper sets out Government's vision, policy principles, strategic goals and objectives for promoting and implementing renewable energy in South Africa.

The White Paper notes that while South Africa is well endowed with renewable energy resources that have the potential to become sustainable alternatives to fossil fuels, these have thus far remained largely untapped. As signatory to the Kyoto Protocol , Government is determined to make good the country's commitment to reducing greenhouse gas emissions. To this purpose, Government has committed itself to the development of a framework in which a national renewable energy framework can be established and operate.

South Africa is also a signatory of the Copenhagen Accord, a document that delegates at the 15th session of the Conference of Parties (COP 15) to the United Nations Framework Convention on Climate Change agreed to "take note of" at the final plenary on 18 December 2009. The accord endorses the continuation of the Kyoto Protocol and confirms that climate change is one of the greatest challenges facing the world. In terms of the accord South Africa committed itself to a reduction target of 34% compared to business as usual. In this regard, the IRP 2010 aims to allocate 43% of new energy generation facilities in South Africa to renewables.

Apart from the reduction of greenhouse gas emissions, the promotion of renewable energy sources is aimed at ensuring energy security through the diversification of supply (in this regard, also refer to the objectives of the National Energy Act).

Government's long-term goal is the establishment of a renewable energy industry producing modern energy carriers that will offer in future years a sustainable, fully non-subsidised alternative to fossil fuels.

Integrated Energy Plan (2016)

The development of a National Integrated Energy Plan (IEP) was envisaged in the White Paper on the Energy Policy of the Republic of South Africa of 1998 and, in terms of the National Energy Act, 2008 (Act No. 34 of 2008), the Minister of Energy is mandated to develop and, on an annual basis, review and publish the IEP in the Government Gazette. The purpose of the IEP is to provide a roadmap of the future energy landscape for South Africa which guides future energy infrastructure investments and policy development.

The IEP notes that South Africa needs to grow its energy supply to support economic expansion and in so doing, alleviate supply bottlenecks and supply-demand deficits. In addition, it is essential that all citizens are provided with clean and modern forms of energy at an affordable price. As part of the Integrated Energy Planning process, eight key objectives were identified, namely:

- Objective 1: Ensure security of supply.
- Objective 2: Minimise the cost of energy.
- Objective 3: Promote the creation of jobs and localisation.
- Objective 4: Minimise negative environmental impacts from the energy sector.
- Objective 5: Promote the conservation of water.
- Objective 6: Diversify supply sources and primary sources of energy.
- Objective 7: Promote energy efficiency in the economy.
- Objective 8: Increase access to modern energy.

The IEP provides an assessment of current energy consumption trends within different sectors of the economy (i.e., agriculture, commerce, industry, residential and transport) and uses this information to identify future energy requirements, based on different scenarios. The scenarios are informed by different assumptions on economic development and the structure of the economy and also consider the impact of key policies such as environmental policies, energy efficiency policies, transport policies and industrial policies, amongst others.

Based on this information the IEP then determines the optimal mix of energy sources and technologies to meet those energy needs in the most cost-effective manner for each of the scenarios. The associated environmental impacts, socio-economic benefits and macroeconomic impacts are also analysed. The IEP is

therefore focused on determining the long-term energy pathway for South Africa, taking into account a multitude of factors which are embedded in the eight objectives.

As part of the analysis four key scenarios were developed, namely the Base Case, Environmental Awareness, Resource Constrained and Green Shoots scenarios:

- The Base Case Scenario assumes that existing policies are implemented and will continue to shape the energy sector landscape going forward. It assumes moderate economic growth in the medium to long term.
- The Environmental Awareness Scenario is characterised by more stringent emission limits and a more environmentally aware society, where a higher cost is placed on externalities caused by the supply of energy.
- The Resource Constrained Scenario in which global energy commodity prices (i.e. coal, crude oil and natural gas) are high due to limited supply;
- The Green Shoots Scenario describes an economy in which the targets for high economic growth and structural changes to the economy, as set out in the National Development Plan (NDP), are met.

The IEP notes that South Africa should continue to pursue a diversified energy mix which reduces reliance on a single or a few primary energy sources. In terms of renewable energy, the document refers to wind and solar energy. The document does however appear to support solar over wind noting that solar PV and CSP with storage present excellent opportunities to diversify the electricity mix, to produce distributed generation and to provide off-grid electricity. Solar technologies also present the greatest potential for job creation and localisation. Incentive programmes and special focused programmes to promote further development in the technology, as well as solar roll-out programmes, should be pursued.

In terms of existing electricity generation capacity, the IEP indicates that existing capacity starts to decline notably from 2025, with significant plant retirement occurring in 2031, 2041 and 2048. By 2050 only 20% of the current electricity generation capacity remains. As a result, large investments are required in the electricity sector in order to maintain an adequate supply in support of economic growth.

By 2020, various import options become available, and some new coal capacity is added along with new wind, solar and gas capacity. The mix of generation capacity technologies by 2050 is considerably more diverse than the current energy mix, across all scenarios. The main differentiating factors between the scenarios are the level of demand, constraints on emission limits and the carbon dioxide externality costs.

In all scenarios the energy mix for electricity generation becomes more diverse over the period to 2050, with coal reducing its share from about 85% in 2015 to 15–20% in 2050 (depending on the scenario). Solar, wind, nuclear, gas and electricity imports increase their share. The Environmental Awareness and Green Shoots scenarios take on higher levels of renewable energy.

An assessment of each scenario against the eight objectives with reference to renewable energy notes while all scenarios seek to ensure that costs are minimised within the constraints and parameters of each scenario, the Base Case Scenario presents the least cost followed by the Environmental Awareness, Resource Constrained and Green Shoots scenarios respectively when total energy system costs are considered.

In terms of promoting job creation and localisation potential, the Base Case Scenario presents the greatest job creation potential, followed by the Resource Constrained, Environmental Awareness and Green Shoots scenarios respectively. In all scenarios, approximately 85% of total jobs are localisable. For electricity generation, most jobs result from solar technologies followed by nuclear and wind, with natural gas and coal making a smaller contribution.

The Environmental Awareness Scenario, due to its stringent emission constraints, shows the lowest level of total emissions over the planning horizon. This is followed by the Green Shoots, Resource Constrained and Base Case scenarios. These trends are similar when emissions are considered cumulatively and individually by type.

The IEP notes that a diversified energy mix with a reduced reliance on a single or a few primary energy sources should be pursued. In terms of renewable energy, wind and solar are identified as the key options.

National Development Plan

The National Development Plan (NDP) contains a plan aimed at eliminating poverty and reducing inequality by 2030. The NDP identifies 9 key challenges and associated remedial plans. Managing the transition towards a low carbon national economy is identified as one of the 9 key national challenges. Expansion and acceleration of commercial renewable energy is identified as a key intervention strategy.

The New Growth Path Framework

The aim of the New Economic Growth Path Framework is to enhance growth, employment creation and equity. Central to the New Growth Path is a massive investment in infrastructure as a critical driver of jobs across the economy. In this regard, the framework identifies investments in five key areas namely: energy, transport, communication, water and housing.

The New Growth Path also identifies five other priority areas as part of the programme, through a series of partnerships between the State and the private sector. The Green Economy as one of the five priority areas to create jobs, including expansions in construction and the production of technologies for solar, wind and biofuels. In this regard, clean manufacturing and environmental services are projected to create 300 000 jobs over the next decade.

DFFE Screening Tool and Protocols

A screening tool report was generated for the proposed Langside Renewable Energy Facility. The outcomes of the various environmental themes sensitivity as well as the level of study required by the protocols, are summarised in the table below.

Table 4: Sensitivity of the environmental themes and studies to be undertake in terms of these sensitivities

Environmental Theme	Sensitivity	Required investigation	Discussion / Compliance
Agriculture Theme	Medium	Agricultural Compliance Statement	An agricultural compliance statement was conducted by a specialist and appended to this BAR.
Animal Species Theme	Medium	Animal Species Compliance statement	This forms part of the Terrestrial Biodiversity Impact Assessment appended to this BAR
Aquatic Biodiversity Theme	Low	Aquatic Biodiversity Compliance Statement	An aquatic biodiversity compliance statement was conducted by a specialist and appended to this BAR.
Archaeological and Cultural Heritage Theme	Low	Heritage Compliance Statement	A Heritage Impact Assessment including Archaeology and Cultural Heritage was conducted by a specialist and appended to this BAR.
Avian Theme	Very High	Avifaunal Impact Assessment	An Avifaunal Impact Assessment was conducted by a specialist and appended to this BAR.
Civil Aviation (Solar PV) Theme	Low	Compliance Statement	The applicant will submitted an obstacle application (Part 30-27) to the South African Civil Aviation Authority. The South African Civil Aviation Authority will be engaged during the comment period on the Draft BAR and requested to provide further input in this regard.
Plant Species Theme	Medium	Compliance Statement	This forms part of the Terrestrial Biodiversity Impact Assessment appended to this BAR
RFI Theme	Medium	Compliance Statement	The South African Square Kilometre Array SKA-SA and SARAO have been requested to provide professional comment in this regard.
Terrestrial Biodiversity Theme	Very High	Terrestrial Biodiversity Impact Assessment	The specialist has confirmed this theme sensitivity to be Medium. A Terrestrial Biodiversity Compliance Statement is appended to this BAR

The table below reflects the specialist studies recommended in the DEA Screening tool and whether they have been included in the BAR.

Table 5: Specialist Studies recommended in the DEA Screening Tool.

Study Recommended	Discussion
Agricultural Impact Assessment	Completed
Landscape/Visual Impact Assessment	Completed
Archaeological and Cultural Heritage Impact Assessment	Completed
Palaeontology Impact Assessment	Completed
Terrestrial Biodiversity Impact Assessment	Completed
Aquatic Biodiversity Impact Assessment	Completed
Avian Impact Assessment	Completed
Civil Aviation Assessment	Not to be undertaken - The South Avian Civil Aviation Authority have been approached to provide input in this regard. The applicant will submit an obstacle application (Part 30-27) to the South African Civil Aviation Authority.
Defense Assessment	Not to be undertaken – the South African National Defence Force have been approached to provide input in this regard.
RFI Assessment	Not to be undertaken – The South African Square Kilometre Array (SA SKA) have been approached to provide comment in this regard. The Closest SKA station is approximately 500km from the proposed project and as such, the project will not have any impact on this.
Socio-Economic Assessment	Completed
Plant Species Assessment	Completed
Animal Species Assessment	Complrete

PROVINCIAL LEGISLATION

Eastern Cape Biodiversity Conservation Plan.

The conservation of CBAs is crucial, in that if these areas are not maintained in a natural or near-natural state, biodiversity conservation targets cannot be met. Maintaining an area in a natural state can include a variety of biodiversity compatible land uses and resource uses (SANBI-BGIS, 2017).

The provincial CBA spatial data for the Eastern Cape province indicates that the project area overlaps with a Terrestrial ESA 1 and is situated near an Aquatic ESA 1 to the north of the project area.

The purpose of the Eastern Cape Biodiversity Conservation Plan (2018) is to inform land-use planning and development on a provincial scale and to aid in natural resource management. One of the outputs is a map of Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs). These are classified into different categories, namely Protected Areas, CBA1 areas, CBA2 areas, ESA1 areas, ESA2 areas, Other Natural Areas (ONAs) and areas with No Natural Habitat Remaining (NNR) based on biodiversity characteristics, spatial configuration, and requirements for meeting targets for both biodiversity patterns and ecological processes.

The Figure below shows the project area superimposed on the Terrestrial CBA and Aquatic CBA map. The project area overlaps with a Terrestrial ESA 1 area and is situated near an Aquatic ESA 1 to the north of the project area. The proposed access road crosses the Aquatic ESA 1.

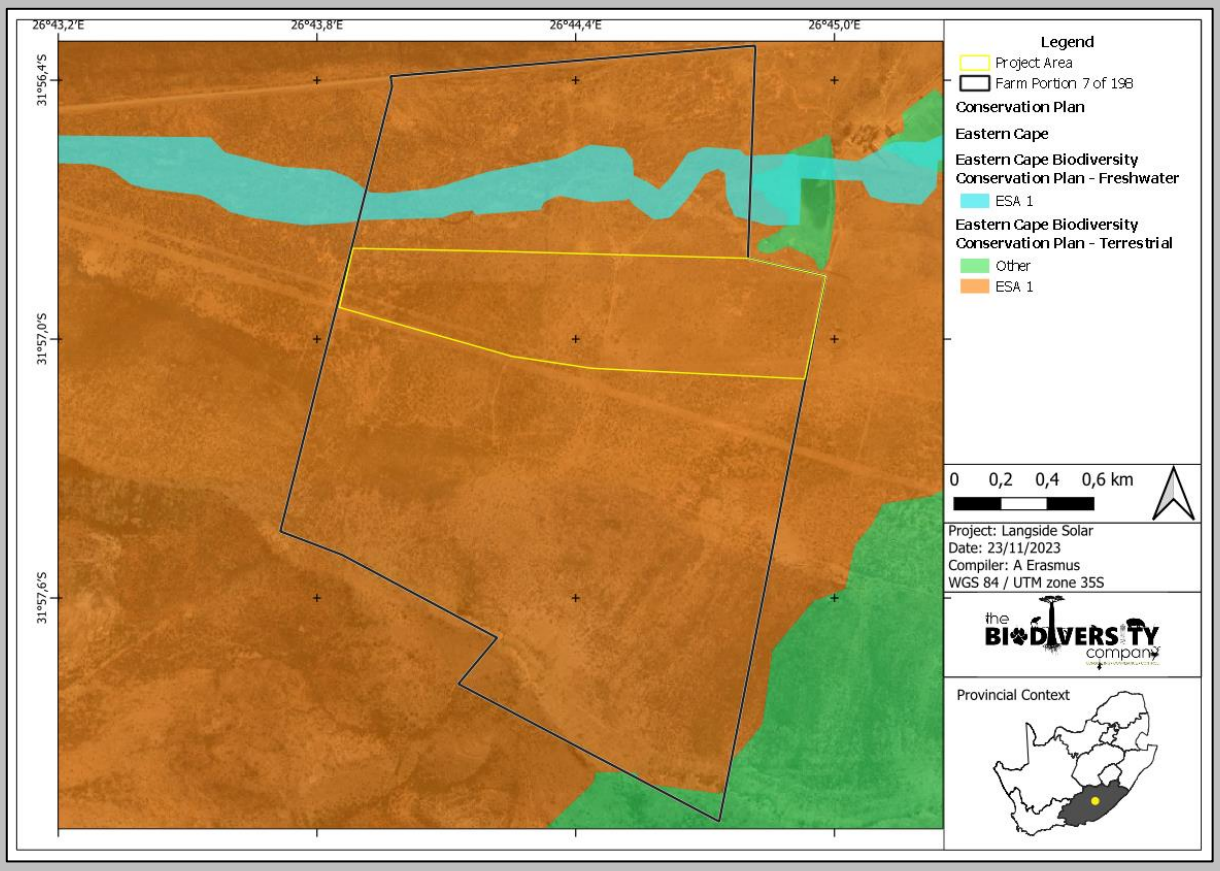


Figure 19: Extract of Eastern Cape Biodiversity Conservation Plan (The Biodiversity Company, 2023).

GUIDELINES, POLICIES AND AUTHORITATIVE REPORTS

Environmental Impact Assessment Guideline For Renewable Energy Projects

The Minister of Environmental Affairs published the Environmental Impact Assessment Guideline for Renewable Energy in terms of section 24J of the National Environmental Management Act, 1998 (Act No. 107 of 1998) on 16 October 2016.

In pursuit of promoting the country's Renewable Energy development imperatives, the Government has been actively encouraging the role of Independent Power Producers (IPPs) to feed into the national grid. Through its REIPPPP, the DoE has been engaging with the sector in order to strengthen the role of IPPs in renewable energy development. Launched during 2011, the REIPPPP is designed so as to contribute towards a target of 3 725MW, and towards socio-economic and environmentally sustainable development, as well as to further stimulate the renewable industry in South Africa.

In order to facilitate the development of the first phase of IPPs in South Africa, these guidelines have been written to assist project planning, financing, permitting, and implementation for both developers and regulators. The guideline is principally intended for use by the following stakeholder groups:

- Public Sector Authorities (as regulator and/or competent authority);
- Joint public sector authorities and project funders, e.g., Eskom, IDC, etc.
- Private Sector Entities (as project funder/developer/consultant);
- Other interested and affected parties (as determined by the project location and/or scope).

This guideline aims to ensure that all potential environmental issues pertaining to renewable energy projects are adequately and timeously assessed and addressed as necessary so as to ensure sustainable roll-out of these technologies by creating a better understanding of the environmental approval process for renewable energy projects.

The guidelines list the following possible environmental impacts associated with the development of solar energy facilities.

Table 6: Potential environmental impacts of solar energy projects (Adapted from DFFE, 2015) showing where they have been considered in this report

Impact Description	**Relevant Legislation**	**Applicability to this project**
Visual Impact	NEMA	Specialist input attached
Noise Impact (CSP)	NEMA	Not applicable, as CSP is not considered as a technology alternative.
Land Use Transformation (fuel growth and production)	NEMA, NEMPAA, NHRA	Not Applicable to PV. Agricultural specialist input however attached
Impacts on Cultural Heritage	NEMA, NHRA	Heritage impact assessment attached
Impacts on Biodiversity –	NEMA, NEMBA, NEMPAA, NFA	Biodiversity specialist input attached.
Impacts on Water Resources –	NEMA, NEMICMA, NWA, WSA	The project will obtain water directly from the local municipality. A freshwater ecologist has assessed the potential impacts on freshwater resources.
Hazardous Waste Generation (CSP and PV)	NEMA, NEMWA, HAS	The EMPr makes provision for damaged and defunct PV infrastructure for dismantling and re-use.
Electromagnetic Interference	NEMA	The closest SKA declared area is approximately 500km East of the Site (SKA133). Considering the distance, the

		project is unlikely to have any impact on the SKA. SKA and SARAO have however been given an opportunity to provide comment in this regard.
Aircraft Interference	NEMA, MSA	The SA CAA have been automatically registered as an interested and affected party on this environmental process. There are no airports nor landing strips in the vicinity of the proposed site.
Loss of Agricultural Land	SALA	Agricultural specialist input attached in 3
Sterilisation of mineral resources	MPRDA	The Department of Mineral Resources has been registered as an I&AP on this environmental process.

Assuming an IPP project triggers the need for BA or S&EIR under the EIA regulations, included in the assessment process is the preparation of an environmental management programme (EMPr). Project-specific measures designed to mitigate negative impacts and enhance positive impacts should be informed by good industry practice and are to be included in the EMPr. Potential mitigation measures for solar energy projects include but are not limited to:

- Conduct pre-disturbance surveys as appropriate to assess the presence of sensitive areas, fauna, flora and sensitive habitats;
- Plan visual impact reduction measures such as natural (vegetation and topography) and engineered (berms, fences, and shades, etc.) screens and buffers;
- Utilise existing roads and servitudes as much as possible to minimise project footprint;
- Site projects to avoid construction too near pristine natural areas and communities;
- Locate developments away from important habitat for faunal species, particularly species which are threatened or have restricted ranges, and are collision-prone or vulnerable to disturbance, displacement and/or habitat loss;
- Fence sites as appropriate to ensure safe restricted access;
- Ensure dust abatement measures are in place during and post construction;
- Develop and implement a storm water management plan;
- Develop and implement waste management plan; and
- Re-vegetation with appropriate indigenous species to prevent dust and erosion, as well as establishment of alien species.

The recommendations of these guidelines have been explicitly considered in this BAR process where necessary and additional specialist input has been obtained.

Sustainability Imperative

The norm implicit to our environmental law is the notion of sustainable development ("SD"). SD and sustainable use and exploitation of natural resources are at the core of the protection of the environment. SD is generally accepted to mean development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs. The evolving elements of the concept of SD *inter alia* include the right to develop; the pursuit of equity in the use and allocation of natural resources (the principle of intra-generational equity) and the need to preserve natural resources for the benefit of present and future generations. Economic development, social development and the protection of the environment are considered the pillars of SD (the triple bottom line).

"Man-land relationships require a holistic perspective, an ability to appreciate the many aspects that make up the real problems. Sustainable planning has to confront the physical, social, environmental and economic challenges and conflicting aspirations of local communities. The imperative of sustainable planning translates into notions of striking a balance between the many competing interests in the ecological, economic and social fields in a planned manner. The 'triple bottom line' objectives of sustainable planning and development should be understood in terms of economic efficiency (employment and economic growth), social equity (human needs) and ecological integrity (ecological capital)."

As was pointed out by the Constitutional Court, SD does not require the cessation of socio-economic development but seeks to regulate the manner in which it takes place. The idea that developmental and environmental protection must be reconciled is central to the concept of SD - it implies the accommodation, reconciliation and (in some instances) integration between economic development, social development and environmental protection. It is regarded as providing a "conceptual bridge" between the right to social and economic development, and the need to protect the environment.

Our Constitutional Court has pointed out that the requirement that environmental authorities must place people and their needs at the forefront of their concern so that environmental management can serve their developmental, cultural and social interests, can be achieved if a development is sustainable. "*The very idea of sustainability implies continuity. It reflects the concern for social and developmental equity between generations, a concern that must logically be extended to equity within each generation. This concern is reflected in the principles of inter-generational and intra-generational equity which are embodied in both section 24 of the Constitution and the principles of environmental management contained in NEMA.*" [Emphasis added.]

In terms of NEMA sustainable development requires the integration of the relevant factors, the purpose of which is *to ensure that development serves present and future generations.*[6]

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6 See definition of "sustainable development" in section 1 of NEMA.

It is believed that the proposed 30MW Langside Renewable Energy Facility supports the notion of sustainable development by presenting a reasonable and feasible alternative to the existing vacant land use type, which has limited agricultural potential due the lack of water and infrastructure.

Furthermore the proposed alternative energy project (reliant on a natural renewable resource – solar energy) is in line with the national and global goal of reducing reliance on fossil fuels, thereby providing long-term benefits to future generations in a sustainable manner.

National Freshwater Ecosystem Priority Areas

The National Freshwater Ecosystem Priority Areas (NFEPA) database forms part of a comprehensive approach to the sustainable and equitable development of South Africa's scarce water resources. This database guides how many rivers, wetlands and estuaries, and which ones, should remain in a natural or near-natural condition to support the water resource protection goals of the National Water Act (Act 36 of 1998). This directly applies to the National Water Act, which feeds into Catchment Management Strategies, water resource classification, reserve determination, and the setting and monitoring of resource quality objectives (Nel *et al*., 2011). The NFEPAs are intended to be conservation support tools and envisioned to guide the effective implementation of measures to achieve the National Environment Management Biodiversity Act's biodiversity goals (NEM:BA) (Act 10 of 2004), informing both the listing of threatened freshwater ecosystems and the process of bioregional planning provided for by this Act (Nel *et al.,* 2011. The Figure below shows that the project area's 500 m regulated area (PAOI) overlaps with two non-priority NFEPA wetlands, but the project area (development footprint) does not overlap with any NFEPAs.

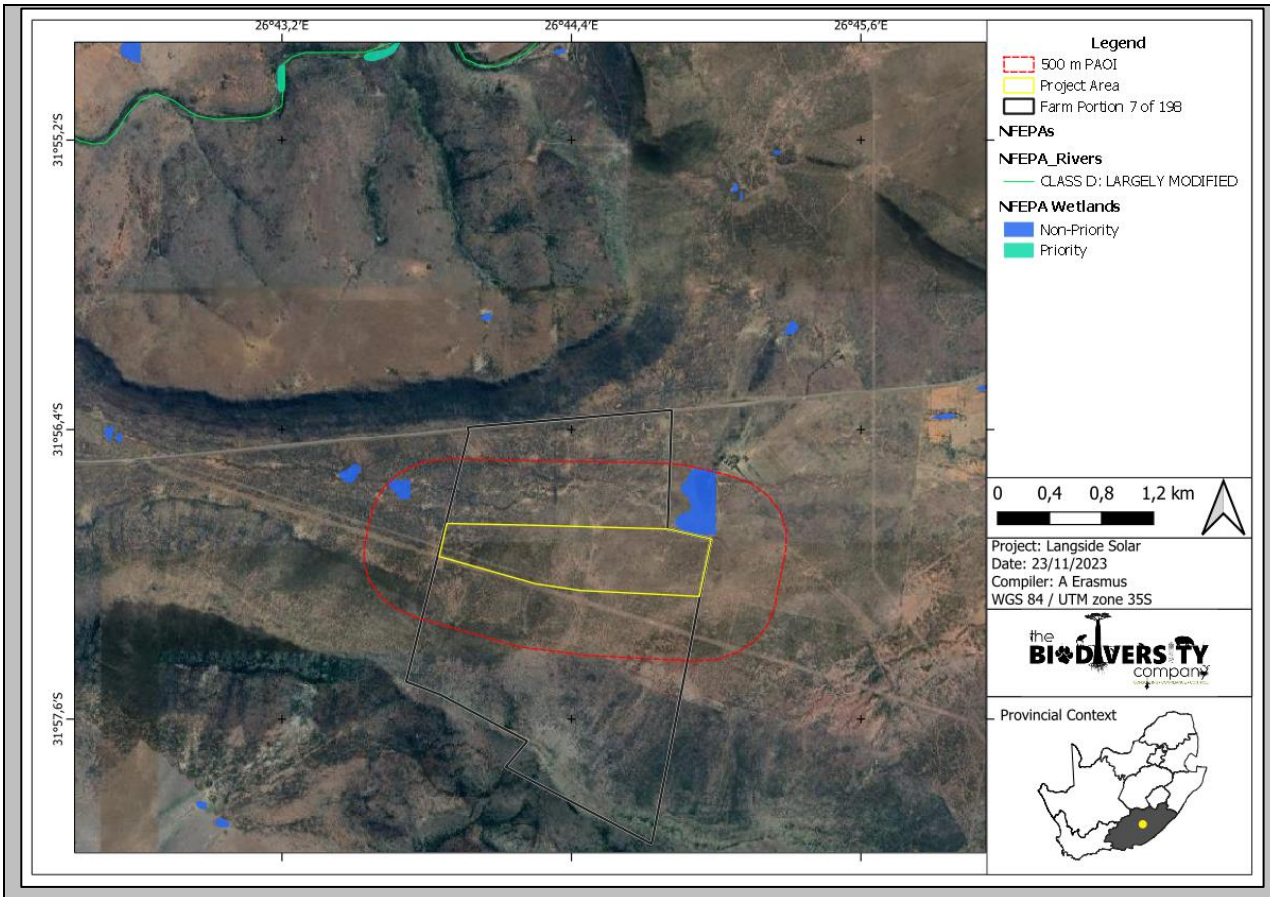

Figure 20: Showing the project area in relation to the National Freshwater Ecosystem Priority Areas.

11. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

11(a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?	✓YES	~~NO~~
If yes, what estimated quantity will be produced per month?	20m^3	
How will the construction solid waste be disposed of (describe)?		

During construction, the main waste streams are packaging from the PV modules and other hardware as well as domestic waste from offices and construction staff.

In Terms of the EMPR, solid waste generated on side will be disposed of as follows:

1. Waste will be sorted into the various recycling streams on site.
2. Recyclable material to be removed from side by a registered service provider/
3. General waste that is not recyclable will be removed from site by a registered waste transporter to a licensed landfill site.
4. Hazardous waste will be removed and safely disposed by a registered hazardous waste management service provider.

Please refer to the EMPr appended for further details in this regard.

Where will the construction solid waste be disposed of (describe)?

General waste that is not recyclable will be removed from site by a registered waste transporter to a licensed landfill site. In terms of the EMPr, the service provider appointed for this purposes will be required to submit the following documentation to the ECO:

- Proof or registration as Waste Transporter.
- Licence in terms of the NEMWA from the landfill facility where the waste is disposed.
- Proof of disposal from the landfill facility in the form of a docked issued by the facility.

Will the activity produce solid waste during its operational phase?	✓YES	~~NO~~
If yes, what estimated quantity will be produced per month?	$1m^3$	

How will the solid waste be disposed of (describe)?

Solid waste during operations, will be minimal and limited to domestic waste generated at the offices. This will be disposed of into the normal municipal waste stream.

In terms of the EMPr, damaged or defunct PV modules may not be disposed of, but must be returned to the supplier or an independent service provider for disassembly and recycling.

Where will the solid waste be disposed if it does not feed into a municipal waste stream (describe)?

The solid waste during operations will be disposed of as part of the municipal waste stream.

If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Can any part of the solid waste be classified as hazardous in terms of the relevant legislation?	✓YES	~~NO~~

If yes, inform the competent authority and request a change to an application for scoping and EIA.

As outlined above, there will be some hazardous waste generated during construction (oil rags, contaminated soil from minor spills clean up, used brushes, used oil and hydraulic fluid from emergency plan repairs). In terms of the EMPr however, this will only be temporary stored on site (less than 90 days) before been removed by a specialist licensed hazardous waste service provider. The applicant will not undertake any activities listed in terms of the National Environmental Management: Waste Act.

Is the activity that is being applied for a solid waste handling or treatment facility?	~~YES~~	✓NO

If yes, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

11(b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?	~~YES~~	✓NO
If yes, what estimated quantity will be produced per month?	$0m^3$	
Will the activity produce any effluent that will be treated and/or disposed of on site?	Yes	✓NO

Effluent generated during construction will include effluent from temporary chemical toilets which will be removed by the toilet service provider to a registered waste water treatment works.

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Will the activity produce effluent that will be treated and/or disposed of at another facility?	✓YES	~~NO~~

If yes, provide the particulars of the facility:

~~Facility name:~~			
~~Contact person:~~			
~~Postal address:~~			
~~Postal code:~~			
~~Telephone:~~		~~Cell:~~	
~~E-mail:~~		~~Fax:~~	

The Enoch Mgijima local municipality will be engaged during the comment period on the Draft Basic Assessment Report to ascertain the closest Licensed Waste Water Treatment Works to the facility.

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

Effluent generated during construction will be limited to sewerage generated in portable toilets. There are limited opportunities to recycle such effluent.

11(c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere?	✓YES	~~NO~~
If yes, is it controlled by any legislation of any sphere of government?	~~YES~~	✓NO

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If no, describe the emissions in terms of type and concentration:

During the construction phase, there will be fugitive dust emissions that will emanate from haul roads and topsoil stripping activities. In terms of the EMPR for the facility, the EPC contractor will be responsible to implement a fugitive dust fall out monitoring programme.

11(d) Generation of noise

Will the activity generate noise?	✓YES	~~NO~~
If yes, is it controlled by any legislation of any sphere of government?	~~YES~~	✓NO

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If no, describe the noise in terms of type and level:

The noise will entail noise typically associated with a construction site. The Contractor shall furthermore be responsible for compliance with the relevant legislation with respect to noise inter alia Section 25 of ECA (73 of 1989) and standards applicable to noise nuisances in the Occupational Health and Safety Act (No. 85 of 1993). In terms of the EMPR, the following environmental impact management actions will be required to be implemented by the EPC.

- Noise generation be kept to a minimum and that construction activities be confined to normal working hours (07:00 - 17:00 on Monday to Saturday). Should the Contractor wish to deviate from these work hours, approval must be granted by the Holder of the EA,
- The following noise reduction actions in respect of plant should be implemented:

1. Provide baffle and noise screens on noisy machines as necessary;

2. Provide absorptive linings to the interior of engine compartments;

3. Ensure machinery is properly maintained (fasten loose panels, replace defective silencers);

4. Switch off machinery immediately when not in use;

12. WATER USE

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es)

✓municipal	~~water board~~	~~groundwater~~	~~river, stream, dam or lake~~	~~other~~	~~the activity will not use water~~

The applicant may in the future consider the option of utilizing groundwater from the site as apposed to hauling water from the municipality. Should this be considered in the future a Water Use Licence / General Authorisation in terms of the National Water Act will be required before such water may be utilized.

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate

~~the volume that will be extracted per month:~~	~~litres~~	
~~Does the activity require a water use permit from the Department of Water Affairs?~~	~~YES~~	~~NO~~

If yes, please submit the necessary application to the Department of Water Affairs and attach proof thereof to this application if it has been submitted.

13. ENERGY EFFICIENCY

Describe the design measures, if any, that have been taken to ensure that the activity is energy efficient:

This is not applicable, as the proposed project is for the generation of electricity.

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

This is not applicable, as the proposed project is for the generation of electricity.

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

1. For linear activities (pipelines, etc) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such

cases please complete copies of Section C and indicate the area, which is covered by each copy No. on the Site Plan.

Section C Copy No. (e.g. A):	

2. Paragraphs 1 - 6 below must be completed for each alternative.

As discussed in earlier sections of the report, no site or layout alternatives will be assessed as part of this environmental assessment process. The site was selected based on a number of criteria, including:

1. Location within a renewable energy development zone;
2. Sufficient Solar Resource;
3. Proximity to the National Grid;
4. Within areas of low agricultural potential;
5. Within areas in need of socio-economic upliftment.

The layout within the selected side was developed using a risk adverse approach whereby site sensitivities were first determined and the layout developed thereafter in such a way to avoid all sensitive features and landscapes.

3. Has a specialist been consulted to assist with the completion of this section?

✓YES	~~NO~~

If YES, please complete the specialist declaration form for each specialist thus appointed:

All specialist reports must be contained in Appendix D.

The following specialist studies were undertaken and consulted to complete this section:

- Aquatic Biodiversity (The Biodiversity Company)
- Terrestrial Biodiversity including plant and animal themes (The Biodiversity Company)
- Avifauna (The Biodiversity Company)
- Heritage, including Archaeology, Palaeontology and Cultural Landscape (CTS Heritage)
- Visual (Nuleaf)
- Social (Mr Tony Barbour)
- Agriculture (Mr Johann Lanz)

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.
Alternative S1:

Flat	✓1:50 – 1:20	~~1:20 – 1:15~~	~~1:15 – 1:10~~	~~1:10 – 1:7,5~~	~~1:7,5 – 1:5~~	~~Steeper than 1:5~~

~~Alternative S2 (if any):~~

~~Flat~~	~~1:50 – 1:20~~	~~1:20 – 1:15~~	~~1:15 – 1:10~~	~~1:10 – 1:7,5~~	~~1:7,5 – 1:5~~	~~Steeper than 1:5~~

~~Alternative S3 (if any):~~

~~Flat~~	~~1:50 – 1:20~~	~~1:20 – 1:15~~	~~1:15 – 1:10~~	~~1:10 – 1:7,5~~	~~1:7,5 – 1:5~~	~~Steeper than 1:5~~

2. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site:

~~2.1 Ridgeline~~
~~2.2 Plateau~~
~~2.3 Side slope of hill/mountain~~
~~2.4 Closed valley~~
~~2.5 Open valley~~
2.6 Plain ✓
~~2.7 Undulating plain / low hills~~
~~2.8 Dune~~
~~2.9 Seafront~~

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site(s) located on any of the following (tick the appropriate boxes)?

	Alternative S1:		**~~Alternative S2 (if any):~~**		**~~Alternative S3 (if any):~~**	
Shallow water table (less than 1.5m deep)	~~YES~~	✓NO	~~YES~~	~~NO~~	~~YES~~	~~NO~~
Dolomite, sinkhole or doline areas	~~YES~~	✓NO	~~YES~~	~~NO~~	~~YES~~	~~NO~~
Seasonally wet soils (often close to water bodies)	~~YES~~	✓NO	~~YES~~	~~NO~~	~~YES~~	~~NO~~
Unstable rocky slopes or steep slopes with loose soil	~~YES~~	✓NO	~~YES~~	~~NO~~	~~YES~~	~~NO~~
Dispersive soils (soils that dissolve in water)	~~YES~~	✓NO	~~YES~~	~~NO~~	~~YES~~	~~NO~~

Soils with high clay content (clay fraction more than 40%)	~~YES~~	✓NO	YES	NO	YES	NO
Any other unstable soil or geological feature	~~YES~~	✓NO	YES	NO	YES	NO
An area sensitive to erosion	~~YES~~	✓NO	YES	NO	YES	NO

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. (Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted).

4. GROUNDCOVER

Indicate the types of groundcover present on the site:

4.1 Natural veld – good condition [E]
4.2 Natural veld – scattered aliens [E]
4.3 Natural veld with heavy alien infestation [E]
4.4 Veld dominated by alien species [E]
4.5 Gardens
4.6 Sport field
4.7 Cultivated land
4.8 Paved surface
4.9 Building or other structure
4.10 Bare soil

The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

✓Natural veld - good condition[E]	✓Natural veld with scattered aliens[E]	~~Natural veld with heavy alien infestation[E]~~	~~Veld dominated by alien species[E]~~	~~Gardens~~
~~Sport field~~	~~Cultivated land~~	~~Paved surface~~	~~Building or other structure~~	✓Bare soil

If any of the boxes marked with an "[E] "is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn't have the necessary expertise.

The terrestrial biodiversity specialist has confirmed that the habitat present on site consists of degraded and heavily degraded areas as depicted in the figure below.

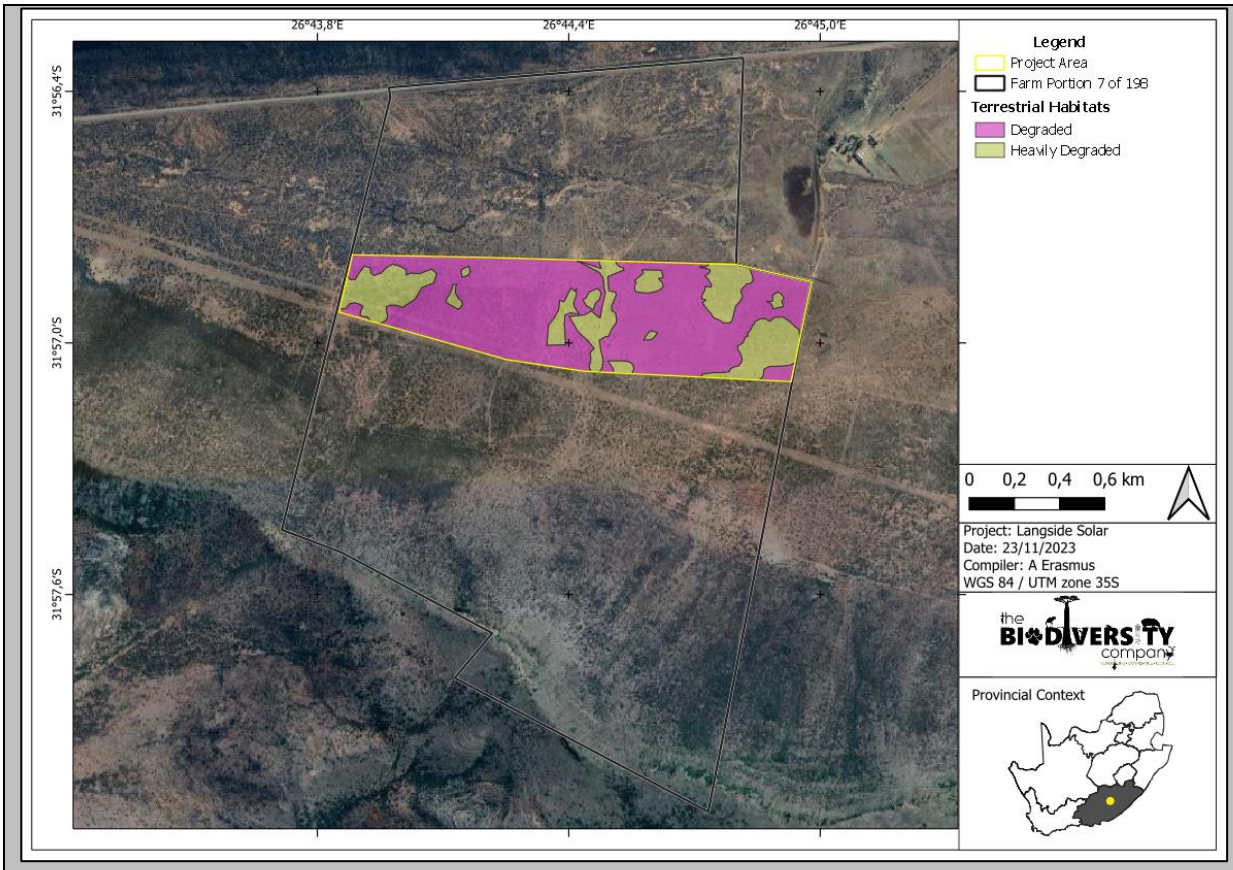

Figure 21: Habitat types within the study site (The Biodiversity Company, 2023).

5. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

5.1 ✓Natural area
~~5.2 Low density residential~~
~~5.3 Medium density residential~~
~~5.4 High density residential~~
~~5.5 Informal residential~~
~~5.6 Retail commercial & warehousing~~
~~5.7 Light industrial~~
~~5.8 Medium industrial~~ ~~AN~~
~~5.9 Heavy industrial~~ ~~AN~~
~~5.10 Power station~~
~~5.11 Office/consulting room~~
~~5.12 Military or police base/station/compound~~
~~5.13 Spoil heap or slimes dam~~ ~~A~~
~~5.14 Quarry, sand or borrow pit~~
~~5.15 Dam or reservoir~~
~~5.16 Hospital/medical centre~~

~~5.17 School~~
~~5.18 Tertiary education facility~~
~~5.19 Church~~
~~5.20 Old age home~~
~~5.21 Sewage treatment plant[A]~~
~~5.22 Train station or shunting yard [N]~~
~~5.23 Railway line [N]~~
~~5.24 Major road (4 lanes or more) [N]~~
~~5.25 Airport [N]~~
~~5.26 Harbour~~
~~5.27 Sport facilities~~
~~5.28 Golf course~~
~~5.29 Polo fields~~
~~5.30 Filling station [H]~~
~~5.31 Landfill or waste treatment site~~
~~5.32 Plantation~~
5.33 ✓Agriculture
5.34 ✓River, stream or wetland
~~5.35 Nature conservation area~~
~~5.36 Mountain, koppie or ridge~~
~~5.37 Museum~~
~~5.38 Historical building~~
~~5.39 Protected Area~~
~~5.40 Graveyard~~
~~5.41 Archaeological site~~
~~5.42 Other land uses (describe)~~

If any of the boxes marked with an "N "are ticked, how will this impact / be impacted upon by the proposed activity.

If any of the boxes marked with an "An" are ticked, how will this impact / be impacted upon by the proposed activity.

~~If YES, specify and explain:~~	
~~If YES, specify:~~	

If any of the boxes marked with an "H" are ticked, how will this impact / be impacted upon by the proposed activity.

~~If YES, specify and explain:~~	
~~If YES, specify:~~	

6. CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including Archaeological or palaeontological sites, on or close (within 20m) to the site?	~~YES~~	✓NO
	Uncertain	
If YES, explain:		

If uncertain, conduct a specialist investigation by a recognised specialist in the field to establish whether there is such a feature(s) present on or close to the site.

Briefly explain the findings of the specialist:	The Heritage Specialist identified a number of isolated artefacts, none of which are dense enough to be considered an archaeological site. None of the archaeological observations made have sufficient scientific value to warrant the irretention and as such, have been graded as Not Conservation-Worthy. The recording of their presence in the Heritage Impact Assessment report is considered sufficient. Additionally, the desktop palaeontological assessment concluded that it is extremely unlikely that any fossils would be preserved in the overlying soils of the Quaternary. There is a very small chance that transported fossil fragments may occur in the sands and alluvium of the Quaternary so a Fossil Chance Find Protocol should be added to the EMPr. The specialist confirmed that based on the outcomes of the assessment, it is unlikely that the proposed development will negatively impact on significant heritage resources.

Will any building or structure older than 60 years be affected in any way?	~~YES~~	✓NO
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	~~YES~~	✓NO

If yes, please submit or, make sure that the applicant or a specialist submits the necessary application to SAHRA or the relevant provincial heritage agency and attach proof thereof to this application if such application has been made.

SECTION C: PUBLIC PARTICIPATION

The full details of public participation undertaken will be presented in the Final Basic Assessment after completion of the comment report. Such details will include:

1. Proof of notification of all relevant state departments or organs of state;
2. Proof of notification of all key stakeholders;
3. Proof of Advertisement;
4. Proof of Site Notice;
5. Correspondence with all Registered and Potential Interested and Affected Parties, State Departments and Organs of State.

1. ADVERTISEMENT

The person conducting a public participation process must take into account any guidelines applicable to public participation as contemplated in section 24J of the Act and must give notice to all potential interested and affected parties of the application which is subjected to public participation by—

(a) fixing a notice board (of a size at least 60cm by 42cm; and must display the required information in lettering and in a format as may be determined by the competent authority) at a place conspicuous to the public at the boundary or on the fence of—
  (i) the site where the activity to which the application relates is or is to be undertaken; and
  (ii) any alternative site mentioned in the application;
(b) giving written notice to—
  (i) the owner or person in control of that land if the applicant is not the owner or person in control of the land;
  (ii) the occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  (iii) owners and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  (iv) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;
  (v) the municipality which has jurisdiction in the area;
  (vi) any organ of state having jurisdiction in respect of any aspect of the activity; and
  (vii) any other party as required by the competent authority;
(c) placing an advertisement in—
  (i) one local newspaper; or
  (ii) any official *Gazette* that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;
(d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or local municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official *Gazette* referred to in subregulation 54(c)(ii); and
(e) using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desiring of but unable to participate in the process due to—
  (i) illiteracy;
  (ii) disability; or
  (iii) any other disadvantage.

2. CONTENT OF ADVERTISEMENTS AND NOTICES

A notice board, advertisement or notices must:

(a) indicate the details of the application which is subjected to public participation; and
(b) state—
  (i) that the application has been submitted to the competent authority in terms of these Regulations, as the case may be;
  (ii) whether basic assessment or scoping procedures are being applied to the application, in the case of an application for environmental authorisation;
  (iii) the nature and location of the activity to which the application relates;
  (iv) where further information on the application or activity can be obtained; and
  (iv) the manner in which and the person to whom representations in respect of the application may be made.

3. PLACEMENT OF ADVERTISEMENTS AND NOTICES

Where the proposed activity may have impacts that extend beyond the municipal area where it is located, a notice must be placed in at least one provincial newspaper or national newspaper, indicating that an application will be submitted to the competent authority in terms of these regulations, the nature and location of the activity, where further information on the proposed activity can be obtained and the manner in which representations in respect of the application can be made, unless a notice has been placed in any *Gazette* that is published specifically for the purpose of providing notice to the public of applications made in terms of the EIA regulations.

Advertisements and notices must make provision for all alternatives.

4. DETERMINATION OF APPROPRIATE MEASURES

The practitioner must ensure that the public participation is adequate and must determine whether a public meeting or any other additional measure is appropriate or not based on the particular nature of each case. Special attention should be given to the involvement of local community structures such as Ward Committees, ratepayers associations and traditional authorities where appropriate. Please note that public concerns that emerge at a later stage that should have been addressed may cause the competent authority to withdraw any authorisation it may have issued if it becomes apparent that the public participation process was inadequate.

5. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments and respond to each comment of the public before the application is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to this application. The comments and response report must be attached under Appendix E.

6. AUTHORITY PARTICIPATION

Authorities are key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input. The planning and the environmental sections of the local authority must be informed of the application at least 30 (thirty) calendar days before the submission of the application.

List of authorities informed:

The following Eastern Cape Government Departments have been informed of the availability of the Draft BAR.

- Community Safety
- Cooperative Governance and Traditional Affairs
- Economic Development, Environmental Affairs and Tourism
- Health
- Public Works and Infrastructure
- Rural Development and Agrarian Reform
- Social Development
- Sport, Recreation, Arts and Culture
- Transport

In addition to these, the following National Government Departments have been notified of the availability of this Draft BAR.

- Department of Agriculture
- Department of Water and Sanitation
- Department of Mineral Resources
- Department of Energy
- Department of Forestry, Fisheries and the Environment.

List of authorities from whom comments have been received:

None. This Draft Basic Assessment Report has been submitted to the abovementioned authorities for comment at the same time that it is submitted to the competent authority for comment. Details on all comments received will be included in the Final BAR that will be submitted to the competent authority for consideration and decision making.

7. CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for linear activities, or where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that subregulation to the extent and in the manner as may be agreed to by the competent authority.

Any stakeholder that has a direct interest in the site or property, such as servitude holders and service providers, should be informed of the application at least 30 (thirty) calendar days before the submission of the application and be provided with the opportunity to comment.

Has any comment been received from stakeholders?	~~YES~~	✓NO

If "YES", briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):

This Draft Basic Assessment Report is currently available for review and comment. All comments received will be included in the Final Basic Assessment Report that will be submitted to the competent authority for decision making.

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2014 as amended, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

1. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

List the main issues raised by interested and affected parties.

The Draft BAR is currently available for stakeholder review and comment. A summary of the main issues raised will be submitted along with the Final Basic Assessment Report on completion of the current public participation process.

Response from the practitioner to the issues raised by the interested and affected parties (A full response must be given in the Comments and Response Report that must be attached to this report):

The responses from the practitioner will be provided on completion of the public participation process.

2. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

List the potential direct, indirect and cumulative property/activity/design/technology/operational alternative related impacts (as appropriate) that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed.

Alternative (preferred alternative)

The following aspects have been assessed in the Draft BAR.

Table 7: Impacts Assessed in the Basic Assessment Report[7].

Specialist Discipline	Nature of impact to be assessed.	Project phase
Ecology (Terrestrial) and Aquatic	Loss and fragmentation of vegetation communities and the ESA1 areas in the vicinity of the project area	Construction, Operation and Decommissioning
	Negative fragmentation effects	
	Movement of faunal species	
	Direct and indirect loss and disturbance of faunal species and community	

[7] Please note that the assessments in this section included the Preferred Layout Alternative.

	Direct and indirect loss and disturbance of species of conservation concern	
Avifaunal	The loss of habitat and subsequent displacement of bird species.	Construction, Operation and Decommissioning
	Direct interaction (collision trauma) by birds with the surface infrastructure (photovoltaic panels) caused by polarised light pollution and/or waterbirds colliding with the panels (as they are mistaken for waterbodies).	Operation
Agriculture	Loss of areas of grazing areas where livestock can be produced	Construction and Operation.
	Soil compaction	Construction
	Soil erosion	Construction and Operation
	Loss of soil fertility through disturbance of in situ horizon organisation	Construction
	Soil chemical pollution	Construction and Operation
Heritage	Direct impact on heritage Resources identified within the study site.	Construction
Visual	Loss of site landscape character from the removal of vegetation and the construction of the PV structures and associated infrastructure;	Construction
	Wind-blown dust due to the removal oof vegetation	
	Possible soil erosion from temporary roads crossing drainage lines	
	Windblown litter from the laydown and construction sites	
	Light spillage making a glow effect that would be clearly noticeable to the surrounding dark sky night landscapes to the north of the proposed site;	Operation
	Massing effect on the landscape from a large-scale modification;	
	On-going soil erosion;	
	On-going windblown dust	
	Movement of vehicles and associated dust;	Decommissioning
	Windblown dust from the disturbance of cover vegetation / gravel	
Social	Creation of employment and business opportunities, and opportunity for skills development and on-site training.(Positive)	Construction, Operation and Decommissioning
	Impacts associated with the presence of construction workers on local communities.	Construction
	Impacts related to the potential influx of job-seekers	Construction, Operation and Decommissioning
	Increased risks to livestock and farming infrastructure associated with the construction related activities and presence of construction workers on the site.	Construction and Decommissioning

	Increased risk of grass fires associated with construction related activities	Construction Construction
	Nuisance impacts, such as noise, dust, and safety, associated with construction related activities and vehicles.	
	Impact on productive farmland	Operation

This section of the report was completed with input from the following specialists:

- Terrestrial Biodiversity (The Biodiversity Company, 2023)
- Avifauna (The Biodiversity Company, 2023)
- Plant Species (The Biodiversity Company, 2023)
- Animal Species (The Biodiversity Company, 2023)
- Aquatic Biodiversity (The Biodiversity Company, 2023)
- Agricultural (Johann Lanz, 2023)
- Palaeontology (Marion Bamford, 2023)
- Archaeology and Heritage (CTS Heritage, 2023)
- Visual (Nuleaf, 2023)
- Socio Economic (Tony Barbour, 2023)

The impacts will firstly be discussed per specialist discipline and then summarised in the impact summary and statement below.

Assessment Methodology

All possible impacts need to the assessed – the **direct, in-direct as well as cumulative impacts**. The following general assessment methodology has been applied:

- **Nature of the impact:** impacts associated with the proposed PV have been described in terms of whether they are negative or positive and to what extent.
- **Duration of impacts**: Impacts were assessed in terms of their anticipated duration:
    - Short term (e.g., during the construction phase – 0 – 2 years)
    - Medium term (e.g., during part or all of the operational phase – 2 - 20 years)
    - Long term (e.g., > 20 years)
    - Permanent (e.g., where the impact is for all intents and purposes irreversible)
    - Discontinuous or intermittent (e.g., where the impact may only occur during specific climatic conditions or during a particular season of the year)
- **Intensity or magnitude**: The size of the impact (if positive) or its severity (if negative):
    - Low, where the receiving environment (biophysical, social, economic, cultural etc) is negligibly affected or where the impact is so low that the remedial action is not required;

- Medium, where the receiving environment (biophysical, social, economic, cultural etc) is altered, but not severely affected, and the impact can be remedied successfully; and
- High, where the receiving environment (biophysical, social, economic, cultural etc) would be substantially (i.e., to a very large degree) affected. If a negative impact, could lead to irreplaceable loss of a resource and/or unacceptable consequences for human wellbeing.

- **Probability**: Should describe the likelihood of the impact actually occurring indicated as:
  - Improbable, where the possibility of the impact is very low either because of design or historic experience;
  - Probable, where there is a distinct possibility that the impact will occur;
  - Highly probable, where it is most likely that the impact will occur; or
  - Definite, where the impact will occur regardless of any prevention measures.
- **Significance:** The significance of impacts can be determined through a synthesis of the assessment criteria. Significance can be described as:
  - Low, where it would have negligible effect on the receiving environment (biophysical, social, economic, cultural etc), and on the decision;
  - Medium, where it would have a moderate effect on the receiving environment (biophysical, social, economic, cultural etc), and should influence the decision;
  - High, where it would have, or there would be a high risk of, a large effect on the receiving environment (biophysical, social, economic, cultural etc). These impacts should have a major influence on the decision;
  - Very high, where it would have, or there would be a high risk of, an irreversible negative impact on the receiving environment (biophysical, social, economic, cultural etc) and irreplaceable loss of natural capital/resources or a major positive effect on human well-being. Impacts of very high significance should be a central factor in decision-making.
  - Provision should be made for with and without mitigation scenarios.
- **Reversibility:**
  - Reversible, the impact can be managed to a low to high degree and is not permanent; or
  - Irreversible, the impact can only be managed to a limited degree and is permanent.
- **Confidence**: The level of confidence in predicting the impact can be described as:
  - Low, where there is little confidence in the prediction, due to inherent uncertainty about the likely response of the receiving ecosystem, or inadequate information;
  - Medium, where there is a moderate level of confidence in the prediction, or
  - High, where the impact can be predicted with a high level of confidence
- **Consequence**: What will happen if the impact occurs

- Insignificant, where the potential consequence of an identified impact will not cause detrimental impact to the receiving environment;
- Significant, where the potential consequence of an identified impact will cause detrimental impact to the receiving environment.
- Provision must be made for with and without mitigation scenarios.

The impacts should also be assessed in terms of the following aspects:

- **Status of the impact**

The specialist should determine whether the impacts are negative, positive or neutral ("cost – benefit" analysis). The impacts are to be assessed in terms of their effect on the project and the environment. For example, an impact that is positive for the proposed development may be negative for the environment. It is important that this distinction is made in the analysis.

- **Cumulative impact**

Consideration must be given to the extent of any accumulative impact that may occur due to the proposed development. Such impacts must be evaluated with an assessment of similar developments planned and already in the environment. Such impacts will be either positive or negative, and will be graded as being of negligible, low, medium or high impact.

Care must be taken to ensure that where cumulative impacts can occur that these impacts are considered and categorised as **additive** (incremental or accumulative); **interactive**, **sequential** or **synergistic**.

Based on a synthesis of the information contained in the above-described procedure, the specialists assessed the potential impacts in terms of the following significance criteria:

- **No significance**: The impacts do not influence the proposed development and/or environment in any way.
- **Low significance**: The impacts will have a minor influence on the proposed development and/or environment. These impacts require some attention to modification of the project design where possible, or alternative mitigation.
- **Moderate significance**: The impacts will have a moderate influence on the proposed development and/or environment. The impact can be ameliorated by a modification in the project design or implementation of effective mitigation measures.
- **High significance**: The impacts will have a major influence on the proposed development and/or environment.

Where relevant, all specialists have assessed the preferred footprint (Layout Alternative 1) and the No-Go Alternative using the abovementioned general methodology as a basis. Please note that each specialist utilises rating and waiting criteria specific to their discipline in order to determine the significance of specific impacts.

For ease of reference, the significance and status of impacts reflected in all the assessment tables in the following sections are also visually reflected using the following colour scheme[8].

All positive impacts (regardless of their significance)	
Very low or low negative impacts	
Medium negative impacts	
Medium – High negative impacts	
High and Very High negative impacts	

Terrestrial Biodiversity Impacts

A Terrestrial Biodiversity Impact Assessment (covering Animal Species, Plant Species and Terrestrial Biodiversity) was undertaken by the Biodiversity Company and is attached in Appendix D**.** The following has been summarised from this assessment.

Construction Phase Terrestrial Biodiversity Impacts[9]

The following terrestrial biodiversity impacts were assessed for the construction phase of the proposed PV facility and associated infrastructure.

Table 8: Assessment of Construction Phase Terrestrial Biodiversity Impacts.

Nature: Destruction, further loss and fragmentation of the of habitats, ecosystems and vegetation community, including protected species		
	Without Mitigation	**With Mitigation**
Extent / Spatial Scope	Local area/ within 1 km of the site boundary / < 5000ha impacted / Linear features affected < 1000m	Development specific/ within the site boundary / < 100 ha impacted / Linear features affected < 100m
Duration	Permanent	One year to five years: Medium Term
Magnitude / Severity	Great / harmful/ ecosystem structure and function largely altered	Significant / ecosystem structure and function moderately altered
Probability	Definite	Likely
Significance	**Medium - High**	**Low**
Status	Negative	Negative
Reversibility	Reversible	Reversible
Irreplaceable loss of resources / Sensitivity of receiving environment.	Ecology moderately sensitive/ /important	Ecology moderately sensitive/ /important
Can impact be mitigated?	Yes	

[8] Where specialist ratings fall across 2 of the groups, the worst case is reflected in the quick reference.
[9] The impact tables in this section reflect those of the preferred alternative (Layout Alternative 1. Cumulative and no-go impacts are assessed in following separate sections.

Mitigation:	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.

Nature: Spread and/or establishment of alien and/or invasive species		
	Without Mitigation	**With Mitigation**
Extent/ Spatial Scope	Local area/ within 1 km of the site boundary / < 5000ha impacted / Linear features affected < 1000m	Development specific/ within the site boundary / < 100 ha impacted / Linear features affected < 100m
Duration	Life of operation or less than 20 years: Long Term	One month to one year: Short Term
Magnitude / Severity	Significant / ecosystem structure and function moderately altered	Small / ecosystem structure and function largely unchanged
Probability	Highly likely	Likely
Significance	**Medium**	**Low**
Status	Negative	Negative
Reversibility	Reversible	Reversible
Irreplaceable loss of resources / Sensitivity of receiving environment	Ecology moderately sensitive/ /important	Ecology with limited sensitivity / importance
Can impact be mitigated?	Yes	
Mitigation:	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.	

Nature: Displacement of faunal community (possibly including SCC) due to habitat loss, direct mortalities, and disturbance (road collisions, noise, light, dust, vibration)		
	Without Mitigation	**With Mitigation**
Extent / Spatial Scope	Local area / within 1 km of the site boundary / < 5000ha impacted / Linear features affected < 1000m	Development specific/ within the site boundary / < 100 ha impacted / Linear features affected < 100m
Duration	Life of operation or less than 20 years: Long Term	One month to one year: Short Term
Magnitude / Severity	Significant / ecosystem structure and function moderately altered	Small / ecosystem structure and function largely unchanged
Probability	Highly likely	Likely
Significance	**Medium - High**	**Low**
Status	Negative	Negative
Reversibility	Partially Reversible	Partially Reversible

Irreplaceable loss of resources / Sensitivity of receiving environment	Ecology highly sensitive /important	Ecology moderately sensitive/ /important
Can impact be mitigated?	Yes	
Mitigation:	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.	

Nature: Chemical pollution associated with dust suppressants		
	Without Mitigation	**With Mitigation**
Extent / Spatial Scope	Local area/ within 1 km of the site boundary / < 5000ha impacted / Linear features affected < 1000m	Development specific/ within the site boundary / < 100 ha impacted / Linear features affected < 100m
Duration	Life of operation or less than 20 years: Long Term	One month to one year: Short Term
Magnitude / Severity	Great / harmful/ ecosystem structure and function largely altered	Small / ecosystem structure and function largely unchanged
Probability	Likely	Likely
Significance	**Medium**	**Low**
Status	Negative	Negative
Reversibility	Reversible	Reversible
Irreplaceable loss of resources / Sensitivity of receiving environment	Ecology moderately sensitive/ /important	Ecology with limited sensitivity/importance
Can impact be mitigated?	Yes	
Mitigation:	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.	

Operational Phase Terrestrial Biodiversity impacts[10]

The following terrestrial biodiversity impacts were assessed for the operational phase of the proposed PV facility and associated infrastructure.

Table 9: Assessment of Operational Phase Terrestrial Biodiversity Impacts.

Nature: Further Destruction, further loss and fragmentation of the of habitats, ecosystems and vegetation community, including protected species		
	Without Mitigation	**With Mitigation**

[10] The impact tables in this section reflect those of the preferred alternative (Layout Alternative 1. Cumulative and no-go impacts assessed in following separate sections.

Extent / Spatial Scope	Local area/ within 1 km of the site boundary / < 5000ha impacted / Linear features affected < 1000m	Development specific/ within the site boundary / < 100 ha impacted / Linear features affected < 100m
Duration	Permanent	One year to five years: Medium Term
Magnitude / Severity	Great / harmful/ ecosystem structure and function largely altered	Significant / ecosystem structure and function moderately altered
Probability	Definite	Likely
Significance	**Medium**	**Low**
Status	Negative	Negative
Reversibility	Partially Reversible	Partially Reversible
Irreplaceable loss of resources / Sensitivity of receiving environment	Ecology moderately sensitive/ /important	Ecology moderately sensitive/ /important
Can impact be mitigated?	Yes	
Mitigation:	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.	

Nature: Continued Spread and/or establishment of alien and/or invasive species		
	Without Mitigation	**With Mitigation**
Extent / Spatial Scope	Local area/ within 1 km of the site boundary / < 5000ha impacted / Linear features affected < 1000m	Development specific/ within the site boundary / < 100 ha impacted / Linear features affected < 100m
Duration	Life of operation or less than 20 years: Long Term	One month to one year: Short Term
Magnitude / Severity	Significant / ecosystem structure and function moderately altered	Small / ecosystem structure and function largely unchanged
Probability	Highly likely	Likely
Significance	**Medium**	**Low**
Status	Negative	Negative
Reversibility	Completely Reversible	Completely Reversible
Irreplaceable loss of resources / Sensitivity of receiving environment	Ecology moderately sensitive/ /important	Ecology with limited sensitivity/importance
Can impact be mitigated?	Yes	
Mitigation:	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.	

Nature: Ongoing Displacement of faunal community (possibly including SCC) due to habitat loss, direct mortalities, and disturbance (road collisions, noise, light, dust, vibration)		
	Without Mitigation	**With Mitigation**
Extent / Spatial Scope	Local area/ within 1 km of the site boundary / < 5000ha impacted / Linear features affected < 1000m	Development specific/ within the site boundary / < 100 ha impacted / Linear features affected < 100m
Duration	Life of operation or less than 20 years: Long Term	One month to one year: Short Term
Magnitude / Severity	Significant / ecosystem structure and function moderately altered	Small / ecosystem structure and function largely unchanged
Probability	Highly likely	Likely
Significance	**Medium**	**Low**
Status	Negative	Negative
Reversibility	Partially Reversible	Partly Reversible
Irreplaceable loss of resources / Sensitivity of receiving environment	Ecology highly sensitive /important	Ecology moderately sensitive/ /important
Can impact be mitigated?	Yes	
Mitigation:	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.	

Nature: Chemical pollution associated with measures to keep PV clean		
	Without Mitigation	**With Mitigation**
Extent / Spatial Scope	Local area/ within 1 km of the site boundary / < 5000ha impacted / Linear features affected < 1000m	Development specific/ within the site boundary / < 100 ha impacted / Linear features affected < 100m
Duration	Life of operation or less than 20 years: Long Term	One month to one year: Short Term
Magnitude / Severity	Great / harmful/ ecosystem structure and function largely altered	Small / ecosystem structure and function largely unchanged
Probability	Likely	Likely
Significance	**Medium**	**Low**
Status	Negative	Negative
Reversibility	Reversible	Reversible
Irreplaceable loss of resources / Sensitivity of receiving environment	Ecology moderately sensitive/ /important	Ecology with limited sensitivity/importance
Can impact be mitigated?	Yes	

Mitigation:	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.

Decommissioning Phase Terrestrial Biodiversity Impacts

The following terrestrial biodiversity impacts were assessed for the Decommissioning and closure phase of the proposed PV facility and associated infrastructure.

Table 10: Assessment of Decommissioning Phase Terrestrial Biodiversity Impacts.

Nature: Continued fragmentation and degradation of habitats		
	Without Mitigation	**With Mitigation**
Extent / Spatial Scope	Local area/ within 1 km of the site boundary / < 5000ha impacted / Linear features affected < 1000m	Development specific/ within the site boundary / < 100 ha impacted / Linear features affected < 100m
Duration	Life of operation or less than 20 years: Long Term	One year to five years: Medium Term
Magnitude / Severity	Significant / ecosystem structure and function moderately altered	Small / ecosystem structure and function largely unchanged
Probability	Highly likely	Likely
Significance	**Medium**	**Low**
Status	Negative	Negative
Reversibility	Partially Reversible	Partially Reversible
Irreplaceable loss of resources / Sensitivity of receiving environment	Ecology moderately sensitive/ /important	Ecology with limited sensitivity/importance
Can impact be mitigated?	Yes	
Mitigation:	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.	

Nature: Continued spread of IAPs		
	Without Mitigation	**With Mitigation**
Extent / Spatial Scope	Local area/ within 1 km of the site boundary / < 5000ha impacted / Linear features affected < 1000m	Development specific/ within the site boundary / < 100 ha impacted / Linear features affected < 100m
Duration	Life of operation or less than 20 years: Long Term	One month to one year: Short Term
Magnitude / Severity	Significant / ecosystem structure and function moderately altered	Small / ecosystem structure and function largely unchanged
Probability	Likely	Likely

Significance	**Medium**	**Low**
Status	Negative	Negative
Reversibility	Completely reversible	Completely reversible
Irreplaceable loss of resources / Sensitivity of receiving environment	Ecology moderately sensitive/ /important	Ecology with limited sensitivity/importance
Can impact be mitigated?	Yes	
Mitigation:	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.	

Nature: Displacement and direct mortalities of faunal community (including SCC) due to disturbance (road collisions, collisions with substation, noise, light, dust, vibration)		
	Without Mitigation	**With Mitigation**
Extent / Spatial Scope	Local area/ within 1 km of the site boundary / < 5000ha impacted / Linear features affected < 1000m	Development specific/ within the site boundary / < 100 ha impacted / Linear features affected < 100m
Duration	Life of operation or less than 20 years: Long Term	One year to five years: Medium Term
Magnitude / Severity	Great / harmful/ ecosystem structure and function largely altered	Small / ecosystem structure and function largely unchanged
Probability	Likely	Possible
Significance	**Medium**	**Low**
Status	Negative	Negative
Reversibility	Reversible	Reversible
Irreplaceable loss of resources / Sensitivity of receiving environment	Ecology moderately sensitive/ /important	Ecology with limited sensitivity/importance
Can impact be mitigated?	Yes	
Mitigation:	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.	

<u>Concluding Statement – Terrestrial Biodiversity Impacts</u>

The Terrestrial Biodiversity Specialist confirmed that the construction and operation of the infrastructure are not anticipated to pose significant threats to the receiving environment provided the mitigation measures are effectively applied.

The project area has a long association with anthropogenic activities, mainly agricultural practices historically, with Invasive Alien Plant proliferation and recreational activities forming the current main driving forces of disturbances within the project area. Three habitat units were recorded in the project area, Degraded and

Heavily degraded areas. The Degraded areas were assigned a low sensitivity whereas the Heavily degraded areas were assigned a very low sensitivity.

The specialist concluded that no fatal flaws are evident for the proposed project and that the average post-mitigation impact significance for the project is low. It is the opinions of the specialists that the project may be favourably considered, on condition that all prescribed mitigation measures are implemented.

A freshwater assessment was undertaken for the Facility, and a small drainage feature was identified in the north of the facility (along the proposed access road).

Avifaunal Impacts

An Avifaunal Impact Assessment was undertaken by The Biodiversity Company and is attached in Appendix D**.** The following has been summarised from this assessment.

Construction Phase Avifaunal Impacts.

The following Avifaunal Impacts were assessed for the construction phase of the proposed PV facility and associated infrastructure.

Table 11: Assessment of construction Phase Avifaunal Impacts.

Nature: Losses of natural habitat and displacement of birds through physical transformation, modifications, removals and land clearance. Construction of PV Panels and Associated Infrastructure.		
	Without Mitigation	**With Mitigation**
Extent / Spatial Scope	Local	Local
Duration	Permanent	Permanent
Magnitude / Severity	High	Moderate
Probability	Definite	Highly Probable
Significance	**Medium**	**Low**
Status	Negative	Negative
Reversibility	Low	Low
Irreplaceable loss of resources / Sensitivity of receiving environment	Yes	Yes
Can impact be mitigated?	Yes, to some extent	
Mitigation:	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.	

Nature: Losses of natural habitat and displacement of birds through physical transformation, modifications, removals and land clearance. Access Road (all Alternatives)		
	Without Mitigation	**With Mitigation**

Extent / Spatial Scope	Local	Local
Duration	Permanent	Permanent
Magnitude / Severity	Low	Minor
Probability	Definite	Probable
Significance	**Medium**	**Low**
Status	Negative	Negative
Reversibility	Low	Low
Irreplaceable loss of resources / Sensitivity of receiving environment	Yes	Yes
Can impact be mitigated?	Yes, to some extent	
Mitigation:	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.	

Operational Phase Avifaunal Impacts

The following Avifaunal Impacts were assessed for the Operational phase of the proposed PV facility and associated infrastructure.

Table 12: Assessment of Operational Phase Avifaunal Impacts

Nature: The creation of novel or new avian habitat for commensal bird species or superior competitive species. This is expected to occur during the operation phase of the facility.		
	Without Mitigation	**With Mitigation**
Extent / Spatial Scope	Footprint	Footprint
Duration	Medium-term	Medium-term
Magnitude / Severity	Minor	Minor
Probability	Probable	Improbable
Significance	**Low**	**Low**
Status	Negative	Negative
Reversibility	Moderate	Moderate
Irreplaceable loss of resources / Sensitivity of receiving environment	No	No
Can impact be mitigated?	Yes, with experimentation	
Mitigation:	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.	

Nature: Avian collision impacts related to the PV facility during the operation phase (collision with the PV panels).		
	Without Mitigation	**With Mitigation**
Extent / Spatial Scope	Local	Local

Duration	Long-term	Long-term
Magnitude / Severity	Low	Minor
Probability	Probable	Improbable
Significance	**Medium**	**Low**
Status	Negative	Negative
Reversibility	Low	Low
Irreplaceable loss of resources / Sensitivity of receiving environment	No, although threatened species are present in the area, these are likely to become displaced while waterbirds are uncommon due to the absence of prominent water/wetland features in the area.	No
Can impact be mitigated?	Yes, to some extent	
Mitigation:	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.	

Decommissioning Phase Avifaunal Impacts

The Specialist did not identify any avifaunal impacts associated with the closure and decommissioning phase of the development.

Concluding Statement – Avifaunal Impacts

Two prominent avifaunal habitat types were identified on the site and consisted of degraded and highly degraded landscapes. Approximately 126 bird species are expected to occur in the wider study area, of which 66 species were observed in the study area (during a wet and dry season survey).

An evaluation of potential and likely impacts on the avifauna revealed that the impact significance was low after mitigation. The study site is not located near any prominent wetland system or impoundment, and therefore the risk of waterbird collisions with the proposed infrastructure was considered to be low.

The specialist did not identify any fatal-flaws as long as the proposed mitigation measures and monitoring protocols (pre- and post construction monitoring) be implemented during the construction and operational phase of the project.

Agricultural Impacts

An Agricultural Impact Assessment (compliance statement) was undertaken by Mr Johann Lanz from SoilZA and is attached in Appendix D**.** The following has been summarised from this assessment.

Construction Phase Agricultural Impacts.

The following Agricultural Impacts were assessed for the construction phase of the proposed PV facility and associated infrastructure

Table 13: Assessment of Construction Phase Agricultural Impacts.

Nature: Change in land use from livestock farming to energy generation		
	Without Mitigation	**With Mitigation**
Extent / Spatial Scope	Local	Local
Duration	Medium duration	Medium duration
Magnitude / Severity	Moderate	Low
Probability	Definite	Definite
Significance	**Medium**	**Low**
Status	Negative	Negative
Reversibility	Moderate	Moderate
Irreplaceable loss of resources / Sensitivity of receiving environment	Yes	Yes
Can impact be mitigated?	No	
Mitigation:	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.	

Nature: Soil erosion		
	Without Mitigation	**With Mitigation**
Extent / Spatial Scope	Local	Local
Duration	Medium-term	Medium-term
Magnitude / Severity	Moderate	Low
Probability	Probable	Improbable
Significance	**Medium**	**Low**
Status	Negative	Negative
Reversibility	Low	Low
Irreplaceable loss of resources / Sensitivity of receiving environment	Yes	No
Can impact be mitigated?	Yes	
Mitigation:	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.	

Nature: Soil pollution		
	Without Mitigation	**With Mitigation**

Extent / Spatial Scope	Local	Local
Duration	Short-term	Short-term
Magnitude / Severity	Moderate	Low
Probability	Low	Improbable
Significance	**Medium**	**Low**
Status	Negative	Negative
Reversibility	Low	Low
Irreplaceable loss of resources / Sensitivity of receiving environment	Yes	No
Can impact be mitigated?	Yes	
Mitigation:	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.	

Operational Phase Agricultural Impacts

The following Agricultural Impacts were assessed for the operational phase of the proposed PV facility and associated infrastructure.

Table 14: Assessment of operational phase Agricultural Impacts

Nature: Soil erosion		
	Without Mitigation	**With Mitigation**
Extent / Spatial Scope	Local	Local
Duration	Medium-term	Medium-term
Magnitude / Severity	Moderate	Low
Probability	Probable	Improbable
Significance	**Medium**	**Low**
Status	Negative	Negative
Reversibility	Low	Low
Irreplaceable loss of resources / Sensitivity of receiving environment	Yes	No
Can impact be mitigated?	Yes	
Mitigation:	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.	

Nature: Soil pollution		
	Without Mitigation	**With Mitigation**
Extent / Spatial Scope	Local	Local
Duration	Short-term	Short-term

Magnitude / Severity	Moderate	Low
Probability	Low	Improbable
Significance	**Medium**	**Low**
Status	Negative	Negative
Reversibility	Low	Low
Irreplaceable loss of resources / Sensitivity of receiving environment	Yes	No
Can impact be mitigated?	Yes	
Mitigation:	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.	

Decommissioning Phase Agricultural Impacts

The following Agricultural Impacts were assessed for the closure and decommissioning phase of the proposed PV facility and associated infrastructure.

Table 15: Assessment of decommissioning phase Agricultural Impacts.

Nature: Soil erosion		
	Without Mitigation	**With Mitigation**
Extent / Spatial Scope	Local	Local
Duration	Medium-term	Medium-term
Magnitude / Severity	Moderate	Low
Probability	Probable	Improbable
Significance	**Medium**	**Low**
Status	Negative	Negative
Reversibility	Low	Low
Irreplaceable loss of resources / Sensitivity of receiving environment	Yes	No
Can impact be mitigated?	Yes	
Mitigation:	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.	

Nature: Soil pollution		
	Without Mitigation	**With Mitigation**
Extent / Spatial Scope	Local	Local
Duration	Short-term	Short-term
Magnitude / Severity	Moderate	Low
Probability	Low	Improbable

Significance	**Medium**	**Low**
Status	Negative	Negative
Reversibility	Low	Low
Irreplaceable loss of resources / Sensitivity of receiving environment	Yes	No
Can impact be mitigated?	Yes	
Mitigation:	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.	

Concluding statement – Agricultural Impacts

The development area consists mostly of shallow Glenrosa soils underlain by lithic that has severe limitations to rainfed crop production. Even though this area is suitable for crop production, it is too small in size as an isolated unit to be used as a commercial crop field.

The Agricultural impacts of the construction and operation of the PV facility and Associated Infrastructure will have impacts that range from medium to low. Through the consistent implementation of the recommendation mitigation measures, all of the of impacts can all be reduced to low.

The specialist concluded that this application be considered favourably from an Agricultural perspective on condition that the mitigation measures are followed to prevent soil erosion and soil pollution and to minimise impacts on the veld quality of the farm portions that will be affected.

Social Impacts

A social Impact Assessment was undertaken by Mr Tony Barbour from Tony Barbour Environmental Consulting and is attached in Appendix D. The following has been summarised from this assessment.

Construction Phase Social Impacts

The following Social Impacts were assessed for the construction phase of the proposed PV facility and associated infrastructure.

Table 16: Assessment of Construction Phase Social Impacts

Nature: Creation of employment and business opportunities during the construction phase		
	Without Mitigation	**With Enhancement**
Extent	Local – Regional	Local – Regional
Duration	Short term	Short term
Magnitude	Moderate	Moderate
Probability	Highly probable	Highly probable
Significance	**Medium**	**Medium**
Status	Positive	Positive

Reversibility	N/A	N/A
Irreplaceable loss of resources?	N/A	N/A
Can impact be enhanced?	Yes	
Enhancement:	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.	

Nature: Potential impacts on family structures and social networks associated with the presence of construction workers		
	Without Mitigation	**With Mitigation**
Extent	Local	Local
Duration	Short term for community as a whole	Short term for community as a whole
Magnitude	Moderate for the community as a whole	Low for community as a whole
Probability	Probable	Probable
Significance	**Medium**	**Low**
Status	Negative	Negative
Reversibility	No in case of HIV and AIDS	No in case of HIV and AIDS
Irreplaceable loss of resources?	Yes, if people contract HIV/AIDS. Human capital plays a critical role in communities that rely on farming for their livelihoods	Yes, if people contract HIV/AIDS. Human capital plays a critical role in communities that rely on farming for their livelihoods
Can impact be mitigated?	Yes, to some degree. However, the risk cannot be eliminated	
Mitigation:	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.	

Nature: Potential impacts on family structures, social networks and community services associated with the influx of job seekers		
	Without Mitigation	**With Mitigation**
Extent	Local	Local (1)
Duration	Permanent (For job seekers that stay on in the area)	Permanent (For job seekers that stay on in the area)
Magnitude	Minor	Minor
Probability	Probable	Probable
Significance	**Low**	**Low**
Status	Negative	Negative

Reversibility	No in case of HIV and AIDS	No in case of HIV and AIDS
Irreplaceable loss of resources?	Yes, if people contract HIV/AIDS. Human capital plays a critical role in communities that rely on farming for their livelihoods	
Can impact be mitigated?	Yes, to some degree. However, the risk cannot be eliminated	
Mitigation	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.	

Nature: Potential risk to safety of scholars, farmers and farm workers, livestock and damage to farm infrastructure associated with the presence of construction workers on site		
	Without Mitigation	**With Mitigation**
Extent	Local	Local
Duration	Short term	Short term
Magnitude	Medium	Low
Probability	Probable	Probable
Significance	**Medium**	**Low**
Status	Negative	Negative
Reversibility	Yes, compensation paid for stock losses and damage to farm infrastructure etc.	Yes, compensation paid for stock losses and damage to farm infrastructure etc.
Irreplaceable loss of resources?	No	No
Can impact be mitigated?	Yes	
Mitigation:	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.	

Nature: Potential loss of livestock, crops and houses, damage to farm infrastructure and threat to human life associated with increased incidence of grass fires		
	Without Mitigation	**With Mitigation**
Extent	Local	Local
Duration	Short term	short term
Magnitude	Moderate due to reliance on agriculture for maintaining livelihoods	Low
Probability	Probable	Probable (3)
Significance	**Medium**	**Low**
Status	Negative	Negative

Reversibility	Yes, compensation paid for stock and crop losses etc.	Yes, compensation paid for stock and crop losses etc.
Irreplaceable loss of resources?	No	No
Can impact be mitigated?	Yes	
Mitigation:	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.	

Nature: Potential noise, dust and safety impacts associated with construction related activities		
	Without Mitigation	**With Mitigation**
Extent	Local	Local
Duration	Short Term	Short Term
Magnitude	Medium	Minor
Probability	Probable	Probable (3)
Significance	**Medium**	**Low**
Status	Negative	Negative
Reversibility	Yes	Yes
Irreplaceable loss of resources?	No	No
Can impact be mitigated?	Yes	
Mitigation:	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.	

Nature: The activities associated with the construction phase, such as establishment of access roads and the construction camp, movement of heavy vehicles and preparation of foundations for the project etc. will damage farmlands and result in a loss of farmlands for grazing.		
	Without Mitigation	**With Mitigation**
Extent	Local	Local
Duration	Long term-permanent if disturbed areas are not effectively rehabilitated	Short term if damaged areas are rehabilitated
Magnitude	Medium	Minor
Probability	Probable	Highly Probable
Significance	**Medium**	**Low**
Status	Negative	Negative
Reversibility	Yes, disturbed areas can be rehabilitated	Yes, disturbed areas can be rehabilitated

Irreplaceable loss of resources?	Yes, loss of farmland. However, disturbed areas can be rehabilitated	Yes, loss of farmland. However, disturbed areas can be rehabilitated
Can impact be mitigated?	Yes, however, loss of farmland cannot be avoided	Yes, however, loss of farmland cannot be avoided
Mitigation:	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.	

Operational Phase Social Impacts

The following Social Impacts were assessed for the operational phase of the proposed PV facility and associated infrastructure.

Table 17: Assessment of social impacts during the operational phase of the development.

Nature: Development of infrastructure to improve energy security and support renewable sector		
	Without Mitigation	**With Mitigation**
Extent	Local, Regional and National	Local, Regional and National
Duration	Long term	Long term
Magnitude	High	High
Probability	Highly Probable	Definite
Significance	**High**	**High**
Status	Positive	Positive
Reversibility	Yes	Yes
Irreplaceable loss of resources?	Yes, impact of climate change on ecosystems	Reduced CO2 emissions and impact on climate change
Can impact be mitigated?	Yes	
Enhancement:	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.	

Nature: Creation of employment and business opportunities associated with the operational phase		
	Without Mitigation	**With Enhancement**
Extent	Local and Regional	Local and Regional
Duration	Long term	Long term
Magnitude	Minor	Low
Probability	Highly Probable	Highly Probable
Significance	**Low**	**Medium**
Status	Positive	Positive
Reversibility	N/A	N/A
Irreplaceable loss of resources?	No	No

Can impact be enhanced?	Yes
Enhancement: See below	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.

Nature: The generation of additional income represents a significant benefit for the local affected farmer(s) and reduces the risks to their livelihoods posed by droughts and fluctuating market prices for sheep and farming inputs, such as feed etc.		
	Without Mitigation	**With Enhancement**
Extent	Local	Local
Duration	Long term	Long term
Intensity	Low	Moderate
Likelihood	Probable	Definite
Significance	**Low**	**Medium**
Status	Positive	Positive
Reversibility	Yes	Yes
Can impact be enhanced?	Yes	
Enhancement:	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.	

Nature: Benefits associated with support for local community's form SED contributions		
	Without Mitigation	**With Enhancement**[11]
Extent	Local and Regional	Local and Regional
Duration	Long term	Long term
Intensity	Low	Moderate
Likelihood	Probable	Definite
Significance	**Medium**	**High**
Status	Positive	Positive
Reversibility	Yes	Yes
Can impact be enhanced?	Yes	
Enhancement:	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.	

Nature: Visual impact associated with the proposed facility and associated infrastructure and the potential impact on the areas rural sense of place.

[11] Enhancement assumes effective management of the community trust

	Without Mitigation	With Mitigation
Extent	Local	Local
Duration	Long term	Long term
Magnitude	Minor	Minor
Probability	Probable	Probable
Significance	**Low**	**Low**
Status	Negative	Negative
Reversibility	Yes, REF components and other infrastructure can be removed.	
Irreplaceable loss of resources?	No	No
Can impact be mitigated?	Yes	
Mitigation	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.	

Nature: Potential impact of the REF on property values		
	Without Mitigation	**With Enhancement / Mitigation**
Extent	Local	Local
Duration	Long term	Long term
Magnitude	Minor	Minor
Probability	Probable	Probable
Significance	**Low**	**Low**
Status	Negative	Negative
Reversibility	Yes	Yes
Irreplaceable loss of resources?	No	No
Can impact be enhanced?	Yes	
Mitigation:	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.	

Nature: Potential impact of the REF on local tourism		
	Without Mitigation	**With Enhancement / Mitigation**
Extent	Local	Local
Duration	Long term	Long term
Magnitude	Minor	Minor
Probability	Probable	Probable
Significance	**Low**	**Low**
Status	Negative	Negative
Reversibility	Yes	Yes

Irreplaceable loss of resources?	No	No
Can impact be enhanced?	Yes	
Mitigation:	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.	

Decommissioning Phase Social Impacts

The social specialist has confirmed that the decommissioning phase social impacts will be largely similar to those associated with the construction phase of the development.

Concluding Statement – Social

The findings of the social impact assessment indicate that the proposed PV Facility and associated infrastructure will result in several social and socio-economic benefits, including creation of employment and business opportunities during both the construction and operational phase. The project will also contribute to local economic development though socio-economic development (SED) contributions. In addition, the development will improve energy security and reduce the carbon footprint associated with energy generation. The findings of the SIA also indicate that the potential negative impacts associated with both the construction and operational phase are likely to be Low Negative with mitigation. The potential negative impacts can therefore be effectively mitigated if the recommended mitigation measures are implemented.

The social specialist concluded that establishment of the proposed PV facility and associated infrastructure is supported by the findings of the Social Impact Assessment.

Heritage Impacts

Heritage Impact Assessment was undertaken by Ms Jenna Lavin from CTS Heritage and is attached in Appendix D**.** The Heritage Impact Assessment includes a Palaeontological assessment compiled by Prof Marion Bamford. The following has been summarised from this assessment.

Construction Phase Heritage Impacts.

The following Heritage Impacts were assessed for the construction phase of the proposed PV facility and associated infrastructure

Table 18: Assessment of Construction Phase Heritage Impacts

Nature: Impacts during the construction phase activities resulting in disturbance of surfaces and/or sub-surfaces may destroy, damage, alter, or remove from its original position archaeological and paleontological material or objects		
	Without Mitigation	**With Mitigation**
Extent / Spatial Scope	Local	Local
Duration	Permanent	Permanent
Magnitude / Severity	Moderate	Minor

Probability	Probable	Improbable
Significance	**Medium**	**Low**
Status	Negative	Negative
Reversibility	Not reversible	Not reversible
Irreplaceable loss of resources / Sensitivity of receiving environment	Yes	Yes
Can impact be mitigated?	Yes	
Mitigation:	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.	

Operational Phase Heritage Impacts

All Impacts on surface and sub surface heritage resources occur during the construction phase of the development and persist through all phases, i.e. they are not reversible.

Closure and Decommissioning Phase Heritage Impacts

All Impacts on surface and sub surface heritage resources occur during the construction phase of the development and persist through all phases, i.e. they are not reversible.

Concluding Statement – Heritage Impacts

The specialist has confirmed that the Project area is a characterised by agricultural activities (mainly grazing) without any major focal points like pans or hills that would have attracted human occupation in antiquity. Heritage finds were limited to Stone Age scatters in low densities in an open-air context throughout the study area. Raw material for tool manufacture is almost exclusively on chert that is readily available in the area and the artefacts are associated with the MSA and LSA.

According to the SAHRA Paleontological sensitivity map the study area is of medium paleontological significance, and this was addressed in an independent study by Bamford (2023). The study conclude that it is extremely unlikely that any fossils would be preserved in the overlying soils and sands of the Quaternary. There is a very small chance that fossils may occur below the ground surface in the dolomites of the Oaktree and Monte Christo Formation (Malmani Subgroup, Chuniespoort Group, Pretoria Supergroup) and may be disturbed, so a Fossil Chance Find Protocol should be added to the EMPr.

The specialist has concluded that the impact on heritage resources is medium but can be mitigated to a low level and the project can commence from a heritage perspective provided that the recommendations are implemented as part of the EMPr.

Visual Impacts

A visual Impact Assessment was undertaken by Nuleaf and is attached in Annexure D The following has been summarised from this assessment.

Construction Phase Visual Impacts

The following Visual Impacts were assessed for the construction phase of the proposed PV facility and associated infrastructure.

Table 19: Assessment of construction phase visual impacts.

Nature: Short-term landscape change from the current rural agricultural sense of place to the semi-industrial Renewable Energy landscape		
	Without Mitigation	**With Mitigation**
Extent / Spatial Scope	Local	Local
Duration	Short term	Short term
Magnitude / Severity	Medium to High	Medium to Low
Probability	Likely	Likely
Significance	**Medium**	**Low**
Status	Negative	Negative
Reversibility	Medium	Medium
Irreplaceable loss of resources / Sensitivity of receiving environment	Reversible after decommissioning	Reversible after decommissioning
Can impact be mitigated?	Medium Mitigation viability	
Mitigation:	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.	

Operational Phase Visual Impacts

The following Visual Impacts were assessed for the operational phase of the proposed PV facility and associated infrastructure.

Table 20: Assessment of operational phase visual impacts.

Nature: Short-term landscape change from the current rural agricultural sense of place to the semi-industrial Renewable Energy landscape (Loss of site landscape character due to the operation of the PV structures and associated infrastructure).		
	Without Mitigation	**With Mitigation**
Extent / Spatial Scope	Local	Local
Duration	Long term	Long term
Magnitude / Severity	Medium	Medium to Low
Probability	Likely	Likely
Significance	**Medium**	**Low**
Status	Negative	Negative

Reversibility	Medium	Medium
Irreplaceable loss of resources / Sensitivity of receiving environment	Reversible after decommissioning	Reversible after decommissioning
Can impact be mitigated?	Medium	
Mitigation:	Mitigation and Environmental Impact Management outcomes and Actions are included in the EMPr attached in Appendix F.	

Decommissioning Phase Visual Impacts

The following Visual Impacts were assessed for the closure and decommissioning phase of the proposed PV facility and associated infrastructure.

Table 21: Assessment of Decommissioning phase visual impacts.

Nature: Short-term landscape change from the removal of the PV structures, followed by rehabilitation of the impacted areas back to agricultural lands.		
	Without Mitigation	**With Mitigation**
Extent / Spatial Scope	Local	Local
Duration	Short term	Short term
Magnitude / Severity	Medium	Medium
Probability	Likely	Likely
Significance	**Medium**	**Low**
Status	Negative	Negative
Reversibility	Medium	Medium
Irreplaceable loss of resources / Sensitivity of receiving environment	Impact will persist until completion of rehabilitation.	Impact will persist until completion of rehabilitation.
Can impact be mitigated?	Medium	
Mitigation:	**Mitigation measures outlined in section 8**	

Concluding Statement - Visual

The visual specialist has concluded that the proposed development can commence with mitigation for the following key reasons:

- Alignment with National planning related to energy and job creation.
- Moderated ZVI with no tourism activities or tourist view-corridors.
- Receptors sensitive to landscape change are limited

Cumulative Impacts

This section is summarised from the cumulative impact assessments that took place by each of the participating specialists. For further details in this regard, the reader is referred to the specialist assessments contained in **Appendix D**.

Where appropriate, certain specialists did include a cumulative assessment of a much wider area than the accepted 30km radius.

The 2014 EIA Regulations (as amended) (GNR 326) define a cumulative impact as follows:

"Cumulative impact in relation to an activity, means the past, current and reasonably foreseeable future impact of an activity, considered together with the impact of activities associated with that activity that in itself may not be significant, but may become significant when added to the existing and reasonably foreseeable impacts eventuating from similar or diverse activities."

There are no other renewable energy facilities in the vicinity of the proposed Langside Renewable Energy Facility. Since the proposed project falls within a renewable energy Development Zone, it is likely that other facilities will be proposed over time.

Potential cumulative impacts identified for the project include various negative impacts such as loss of habitat, visual massing, loss of agricultural land an influx jobseekers and change in the area's sense of place, but also include positive cumulative impacts on the economy, business development, and employment.

The table below provides a summary of the significance and status of cumulative impacts associated the Langside Renewable Energy Facility.

Nature of Cumulative Impact	**Significance Cumulative**	**Status**
Terrestrial Biodiversity		
Loss of Habitat	Medium	Negative
Avifauna		
Regional losses of natural habitat and subsequent displacement of birds.	Medium	Negative
Avian collision impacts related to the PV facility during the operation phase (collision with the PV panels).	Medium	Negative
Agriculture		
Decrease in areas with suitable land capability for cattle farming.	Medium	Negative
Increase in areas susceptible to soil erosion	Medium	Negative
Increase in areas susceptible to soil erosion	Low	Negative
Increase in areas susceptible to soil pollution	Medium	Negative
Heritage		
Cumulative impact on widespread low-density Stone Age lithics	Medium	Negative
Visual		
Short-term landscape change from the current rural agricultural sense of place to the semi-industrial Renewable Energy Landscape.	Medium to Low	Negative
Long Term landscape change from the current rural agricultural sense of place to the semi-industrial Renewable Energy Landscape	Medium	Negative

Short-term landscape change from the removal of the PV structures, followed by rehabilitation of the impacted areas back to agricultural lands.	Low	Neutral
Social		
Visual impacts associated with the establishment of more than one REF and the potential impact on the area's rural sense of place and character of the landscape.	Medium	Negative
The establishment of a number of renewable energy facilities and associated projects, such as the proposed Langside Renewable Energy Facility, has the potential to place pressure on local services, specifically medical, education and accommodation.	Medium	Negative
The establishment of renewable energy facilities and associated projects, such as the REF, in the DLM will create employment, skills development and training opportunities, creation of downstream business opportunities.	Medium	Positive

As can be seen in the table above, the majority of cumulative impacts are of medium significance, which is considered to be acceptable on a regional scale.

Impact Summary

The table below summarises the status and significance of all impacts (with and without mitigation) as assessed in the sections above (Please also refer to the specialist assessment Reports attached in Appendix D).

Table 22: Impact Summary of the proposed Landside Renewable Energy Facility and associated infrastructure[12].

Nature of Impact	**Significance / Status Without Mitigation**	**Significance / Status With Mitigation[13]**
TERRESTRIAL BIODIVERSITY IMPACTS		
Construction Phase Terrestrial Biodiversity Impacts		
Destruction, further loss and fragmentation of the of habitats, ecosystems and vegetation community, including protected species	**Moderately High Negative**	**Low Negative**
Spread and/or establishment of alien and/or invasive species	**Moderate Negative**	**Low Negative**
Displacement of faunal community (possibly including SCC) due to habitat loss, direct mortalities, and disturbance (road collisions, noise, light, dust, vibration)	**Moderately High Negative**	**Low Negative**
Chemical pollution associated with dust suppressants	**Moderate Negative**	**Low Negative**
Operational Phase Terrestrial Biodiversity impacts		

[12] The nature and significance of impacts outlined in this section refer to those associated with the preferred alternative.
[13] In order to achieve the significance outlined in this column, the EMPr in Appendix G need to be adopted and implemented.

Further Destruction, further loss and fragmentation of the of habitats, ecosystems and vegetation community, including protected species	**Moderate Negative**	**Low Negative**
Continued Spread and/or establishment of alien and/or invasive species	**Moderate Negative**	**Low Negative**
Ongoing Displacement of faunal community (possibly including SCC) due to habitat loss, direct mortalities, and disturbance (road collisions, noise, light, dust, vibration)	**Moderate Negative**	**Low Negative**
Chemical pollution associated with measures to keep PV clean	**Moderate Negative**	**Low Negative**
Decommissioning Phase Terrestrial Biodiversity Impacts		
Continued fragmentation and degradation of habitats	**Moderate Negative**	**Low Negative**
Continued spread of Invasive Alien Plants	**Moderate Negative**	**Low Negative**
Displacement and direct mortalities of faunal community (including SCC) due to disturbance (road collisions, collisions with substation, noise, light, dust, vibration)	**Moderate Negative**	**Low Negative**
AVIFAUNAL IMPACTS		
Construction Phase Avifaunal Impacts.		
Losses of natural habitat and displacement of birds through physical transformation, modifications, removals and land clearance. Construction of PV Panels and Associated Infrastructure	**Medium Negative**	**Medium Negative**
Losses of natural habitat and displacement of birds through physical transformation, modifications, removals and land clearance. Access Road (all Alternatives)	**Medium Negative**	**Low Negative**
Operational Phase Avifaunal Impacts		
The creation of novel or new avian habitat for commensal bird species or superior competitive species. This is expected to occur during the operation phase of the facility	**Low Negative**	**Low Negative**
Avian collision impacts related to the PV facility during the operation phase (collision with the PV panels).	**Medium Negative**	**Low Negative**
Decommissioning Phase Avifaunal Impacts		
The Specialist did not identify any avifaunal impacts associated with the closure and decommissioning phase of the development.		
AGRICULTURAL IMPACTS		
Construction Phase Agricultural Impacts		
Change in land use from livestock farming to energy generation	**Medium Negative**	**Medium Negative**
Soil erosion	**Medium Negative**	**Low Negative**
Soil pollution	**Medium Negative**	**Low Negative**
Operational Phase Agricultural Impacts		
Soil erosion	**Medium Negative**	**Low Negative**
Soil pollution	**Medium Negative**	**Low Negative**
Decommissioning Phase Agricultural Impacts		
Soil erosion	**Medium Negative**	**Low Negative**
Soil pollution	**Medium Negative**	**Low Negative**
HERITAGE IMPACTS.		

Construction Phase Heritage Impacts		
Impacts during the construction phase activities resulting in disturbance of surfaces and/or sub-surfaces may destroy, damage, alter, or remove from its original position archaeological and paleontological material or objects	**Medium Negative**	**Low Negative**
Operational Phase Heritage Impacts		
Impacts on surface and sub surface heritage resources occur during the construction phase of the development and persist through all phases, i.e. they are not reversible.		
Closure and Decommissioning Phase Heritage Impacts		
All Impacts on surface and sub surface heritage resources occur during the construction phase of the development and persist through all phases, i.e. they are not reversible.		
VISUAL IMPACTS		
Construction Phase Visual Impacts		
Short-term landscape change from the current rural agricultural sense of place to the semi-industrial Renewable Energy landscape	**Medium Negative**	**Medium to Low Negative**
Operational Phase Visual Impacts		
Long-term landscape change from the current rural agricultural sense of place to the semi-industrial Renewable Energy landscape (Loss of site landscape character due to the operation of the PV structures and associated infrastructure).	**Medium Negative**	**Low Negative**
Decommissioning Phase Visual Impacts		
Short-term landscape change from the removal of the PV structures, followed by rehabilitation of the impacted areas back to agricultural lands.	**Medium Negative**	**Low Negative**
SOCIAL IMPACTS		
Construction Phase Social Impacts		
Creation of employment and business opportunities during the construction phase	**Medium Positive**	**Medium Positive**
Potential impacts on family structures and social networks associated with the presence of construction workers	**Medium Negative**	**Low Negative**
Potential impacts on family structures, social networks and community services associated with the influx of job seekers	**Low Negative**	**Low Negative**
Potential risk to safety of scholars, farmers and farm workers, livestock and damage to farm infrastructure associated with the presence of construction workers on site	**Medium Negative**	**Low Negative**
Potential loss of livestock, crops and houses, damage to farm infrastructure and threat to human life associated with increased incidence of grass fires	**Medium Negative**	**Low Negative**
Potential noise, dust and safety impacts associated with construction related activities	**Medium Negative**	**Low Negative**
The activities associated with the construction phase, such as establishment of access roads and the construction camp, movement of heavy vehicles and preparation of foundations for the project etc. will	**Medium Negative**	**Low Negative**

damage farmlands and result in a loss of farmlands for grazing.		
Operational Phase Social Impacts		
Development of infrastructure to improve energy security and support renewable sector	**High Positive**	**High Positive**
Creation of employment and business opportunities associated with the operational phase	**Low Positive**	**Medium Positive**
The generation of additional income represents a significant benefit for the local affected farmer(s) and reduces the risks to their livelihoods posed by droughts and fluctuating market prices for sheep and farming inputs, such as feed etc.	**Low Positive**	**Medium Positive**
Benefits associated with support for local community's form SED contributions	**Medium Positive**	**High Positive**
Visual impact associated with the proposed facility and associated infrastructure and the potential impact on the areas rural sense of place.	**Low Negative**	**Low Negative**
Potential impact of the REF on property values	**Low Negative**	**Low Negative**
Potential impact of the REF on local tourism	**Low Negative**	**Low Negative**
Decommissioning Phase Social Impacts		
The social specialist has confirmed that the decommissioning phase social impacts will be largely similar to those associated with the construction phase of the development		

3. CLIMATE CHANGE ASSESSMENT

Climate change issues must be considered as part of the EIA process. EAP must determine:
a)The potential impact of climate change on society and the economy, whether the impact is negative or positive, considering that society needs to be at the centre of the proposed development;
b)The potential alternatives of the proposed development, alternatives that will have less impact on climate change (environment and generation of waste included), the society and economy;
c)whether, and to what extent, the proposed development will result in the release of greenhouse gas (GHG) emissions;
d)whether the proposed development is necessary to achieve long term decarbonisation goals;
e)the impact of the development on social, economic, natural and built environment that are crucial for climate change, adaptation and resilience;
f) the projected impact of climate change on proposed development; and surrounding environment, and implications for the development.
g)Explanation of how the impacts is likely to be exacerbated or minimised as result of climate change and what measures are likely to be implemented to accommodate and manage (adapt to) the anticipated worst scenario where applicable
h) whether, and to what extent, the impacts identified in (a) -(g) can be mitigated.

a) Potential Impact of Climate Change on Society and Economy:

Climate change can have various impacts on society and the economy, including extreme weather events, sea-level rise, and disruptions to agriculture. These impacts can be predominantly negative, affecting infrastructure, food security, and overall well-being. The proposed 30 Megawatt Langside Renewable Energy Facility can contribute positively by reducing reliance on fossil fuels, mitigating climate change, and enhancing societal and economic resilience.

b) Potential Alternatives with Less Impact on Climate Change:
Alternative options might include wind or hydropower, but the specific choice depends on local conditions, in this case the availability of sufficient energy resource.

c) Release of Greenhouse Gas Emissions:
Solar PV developments have minimal operational greenhouse gas emissions compared to fossil fuel-based energy sources.

d) Necessity for Long-Term Decarbonization Goals:
The proposed solar PV development is crucial for achieving long-term decarbonization goals. By providing clean and renewable energy, it contributes to reducing overall carbon emissions, aligning with global efforts to combat climate change and transition to a low-carbon economy.

e) Impact on Social, Economic, Natural, and Built Environment:
Socially, the development creates job opportunities and improves access to clean energy. Economically, it stimulates growth. The natural environment is affected minimally, and the built environment benefits from reduced air pollution. These factors enhance climate change adaptation and resilience.

f) Projected Impact of Climate Change on the Development:
Climate change may affect the development through extreme weather events, changes in sunlight patterns, or temperature variations. Regular monitoring and adaptive strategies are essential to address potential challenges and ensure the project's longevity and effectiveness.

g) Exacerbation or Minimization of Impacts due to Climate Change:
Climate change can exacerbate challenges such as extreme weather events or supply chain disruptions. Implementing robust design and operational strategies, incorporating climate resilience measures, and collaborating with local communities can minimize these impacts and enhance adaptability to changing conditions.

h) Mitigation of Identified Impacts:
Impacts can be mitigated through comprehensive environmental management plans, community engagement, technology advancements, and continuous monitoring. Additionally, investing in research and development for sustainable practices can further reduce the project's overall environmental footprint.

In summary, the 30 Megawatt Langside Renewable Energy Facility can, help to address the potential impacts of climate change on society, the economy, and the environment.

4. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

As can be seen in the table in section 2 above, all impacts associated with the proposed Langside Renewable Energy Facility range from high – positive to Medium – Negative and All Medium – High and High negative Impacts have been avoided by the avoidance of sensitive features or mitigated to acceptable levels.

None of the participating specialists identified any impacts that remain high or very-high after mitigation. The preferred layout avoids the main sensitive features.

The Terrestrial Biodiversity specialist concluded that there are no fatal flaws are evident for the proposed project and that the average post-mitigation impact significance for the project is moderately low.

The Avifaunal Specialist concluded that no fatal-flaws were identified during the avifaunal assessment, but strongly recommended that the proposed mitigation measures and monitoring protocols be implemented during the lifecycle of the project.

The Agricultural specialist confirmed that the development area consists mostly of shallow Glenrosa soils underlain by lithic that has severe limitations to rainfed crop production and concluded that the project infrastructure will not interfere with the nearby High Potential Agricultural Areas on neighbouring farm portions.

The heritage specialist confirmed that the overall impact of the project is considered to be medium but can be mitigated to a low level with the implementation of the suggested mitigation measures (i.e. the implementation of a chance find procedure).

The visual specialist has concluded that the proposed development can commence due to its Alignment with National planning related to energy and job creation; Moderated zone of Visual Influence with no tourism activities or tourist view-corridors and limited receptors that are sensitive to landscape change.

The Social specialist concluded that the proposed PV Facility and associated infrastructure will result in several social and socio-economic benefits, including creation of employment and business opportunities during both the construction and operational phase. The project will also contribute to local economic development though socio-economic development (SED) contributions. In addition, the development will improve energy security and reduce the carbon footprint associated with energy generation.

As such there are no fatal flaws or high post-mitigation impacts that should prevent the development from proceeding. Based on the layout provided for the assessment, the Langside Renewable Energy Facility can be supported from a terrestrial biodiversity, aquatic biodiversity, avifaunal, visual, social, heritage and agricultural view.

A map showing the proposed activity in relation to the key sensitive features is in attached in Appendix B. All sensitive features along with their appropriate buffers are shown in this plan. As required by the EMPr, all areas outside of the proposed development footprint are to be demarcated as no go areas.

The public participation is currently underway.

It is Cape EAPrac's reasoned opinion that the preferred Alternative can be considered for approval by the competent Authority subject to the outcome of the public participation process and on condition that all the suggested mitigation measures are implemented, all other legislative approvals be obtained, and that the final EMPr be strictly adhered to.

No-go alternative (compulsory)

As required in the 2014 EIA regulations (as amended), this EIR includes an assessment of the assessment of the no go alternative (i.e. the option of not proceeding with the proposed development). This provides details on the impact of the status quo (i.e. the impact and risks associated with the current land use)

The Terrestrial Biodiversity specialist has confirmed that the current land use is predominantly grazing, and the associated impacts caused by this to the terrestrial ecology is considered to be low. However, if this grazing land use is left unmanaged for the foreseeable future, it is probable that the ecological integrity and functioning of the grassland area will deteriorate. Under the current circumstances, the 'no-go' alternative is considered to represent a low long-term negative impact on the environment.

From an Avifaunal perspective, the existing powerlines on site have an impact on the bird species susceptible to collision.

The primary goal of the project is to assist in providing additional capacity to assist in addressing the current energy supply constraint in the country. The project also aims to reduce the carbon footprint associated with energy generation. As indicated in the social impact assessment (Appendix D) energy supply constraints and the associated load shedding have had a significant impact on the economic development of the South African economy. South Africa also relies on coal-powered energy to meet more than 90% of its energy needs. South Africa is therefore one of the highest per capita producers of carbon emissions in the world and Eskom, as an energy utility, has been identified as the world's second largest producer of carbon emissions. The no-development option would result in the lost opportunity for South Africa to improve energy security and assist to support with the development of clean, renewable energy. The No-Development option would represent a lost opportunity for South Africa to improve energy security and supplement is current energy needs with clean, renewable energy. Given South Africa's current energy security challenges and its position as one of the highest per capita producers of carbon emissions in the world, this would represent a significant negative social cost.

SECTION E. RECOMMENDATIONS OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?	✓YES	~~NO~~
Is an EMPr attached?	✓YES	~~NO~~

The EMPr must be attached as Appendix F.

If "NO", indicate the aspects that should be assessed further as part of a Scoping and EIA process before a decision can be made (list the aspects that require further assessment):

The EMPr is attached in Appendix G.

If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application:

All Environmental Impact Management outcomes and actions required to achieve the post mitigation impacts are included in the EMPr attached in Appendix G.

SECTION F: APPENDICES

The following appendixes must be attached as appropriate:

Appendix A: Site plan(s)

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports

Appendix E: Comments and responses report

Appendix F: Environmental Management Programme (EMPr)

Appendix G: Other information