

JULY 2020

**ENVIRONMENTAL IMPACT ASSESSMENT
AND
PUBLIC PARTICIPATION PROCESS**

**PROPOSED DEVELOPMENT OF THE
UPILENGA SOLAR PARK AND
ASSOCIATED INFRASTRUCTURE
NORTHERN CAPE PROVINCE**

savannah
environmental

BACKGROUND INFORMATION DOCUMENT (BID)



Envelo Capital Projects (Pty) Ltd, an independent power developer of solar power plants in South Africa proposes the development of the Upington Ilanga Solar Park (Upilanga Solar Park) comprising photovoltaic (PV) solar energy facilities and CSP facilities with associated infrastructure, to be implemented in a phased approach. The proposed sites are located ~30km south-east of the town of Upington in the Northern Cape Province. Upilanga Solar Park already includes various authorised CSP facilities, including the operational Karoshoek Solar One facility, and will ultimately comprise of a number of solar projects when completed. The projects are intended to assist in addressing South Africa's energy challenge and to align with the Department of Mineral Resources and Energy (DMRE's) Integrated Resource Plan (IRP) 2019, to pursue a diversified energy mix that reduces reliance on a single or a few primary energy sources. It is the Developer's intention to bid each solar PV facility under the Department of Mineral Resources and Energy's Independent Power Producers Procurement Programmes, while simultaneously diversifying South Africa's electricity mix, and positively contributing towards socio-economic and environmentally sustainable growth.

The first phase of the additional projects proposed as part of the Upilanga Solar Park consists of two 100MW PV facilities, i.e. Upilanga PV1 and Upilanga PV2. Each solar PV facility will be constructed as a separate stand-alone project, with a separate project development company, or Special Purpose Vehicle (SPV) as the applicant for each project.

Additional projects (as listed below) will be considered in future phases of the proposed development, and will undergo separate EIA processes.

AIM OF THIS BACKGROUND INFORMATION DOCUMENT

This document aims to provide you, as an Interested and / or Affected Party (I&AP), with:

- » An overview of the projects proposed to form part of the Upilanga Solar Park.
- » An overview of the first phase of the project (Upilanga PV1 and Upilanga PV2).
- » An overview of the Basic Assessment processes, public participation process, and specialist studies being undertaken to assess the potential positive and negative direct, indirect, and cumulative impacts of the various projects under consideration.
- » Details of how you can become involved in the Basic Assessment processes, receive information, or raise issues which may concern and / or interest you.

OVERVIEW OF THE PROPOSED PROJECTS

Nine PV projects are proposed to form part of the Upilanga Solar Park. The projects are proposed within the Remaining Extent of Matjesrivier 41, Portion 2 & 3 of the farm Matjesrivier 41 and Lot 944 and will form part of the Upilanga Solar Park located approximately 30 km east of Upington. The locations and property details of the remaining PVs proposed from site 3 to site 9 are to be confirmed within future Basic Assessment processes. The site falls within the jurisdiction of the Dawid Kruijer Local Municipality and the greater ZF Mgcawu District Municipality, Northern Cape Province. The projects will include the following:

Site reference	Project Name and Description
Site 1	Upilanga PV 1 (1 x 100 MW PV facility)
Site 2	Upilanga PV 2 (1 x 100 MW PV facility)
Site 3	Upilanga PV 3 (1 x 350 MW PV facility)
Site 4	Upilanga PV 4 (1 x 350 MW PV facility)
Site 5	Upilanga PV 5 (1 x 350 MW PV facility)
Site 6	Upilanga PV 6 (1 x 100 MW PV facility)
Site 7	Upilanga PV 7 (1 x 100 MW PV facility)
Site 8	Upilanga PV 8 (1 x 100 MW PV facility)
Site 9	Upilanga PV 9 (1 x 100 MW PV facility)

The development footprint for the Upilanga Solar Park is approximately 7000 ha in extent. Currently only the basic assessment processes for the 100MW Upilanga PV1 and Upilanga PV2 facilities are to be undertaken as the first phase of the new projects proposed as part of the Upilanga Solar Park. Potential and registered Stakeholders and I&APs will be notified upon commencement of the environmental processes for the remaining facilities when these proceed.

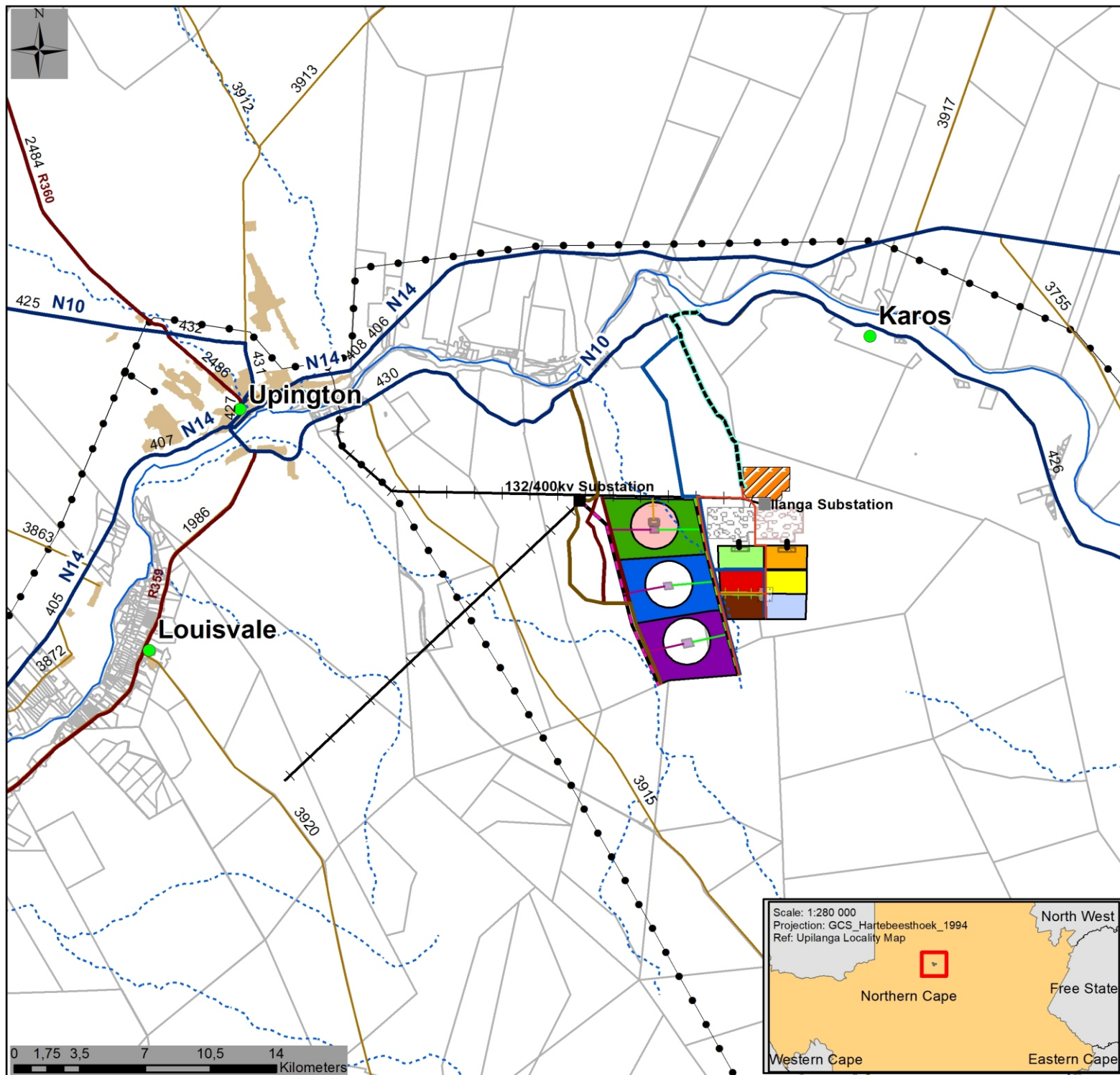
Through a previous environmental process undertaken on the proposed broader Upilanga Solar Park, a number of solar power plants were authorised. These are detailed in the table below:

Site reference	Project Name and Description	DEA Reference number
Site 2	Karoshoek CPVPD 1 (1 x 25 MW Concentrating photovoltaic or parabolic dish technology project)	14/12/16/3/3/2/292
	Karoshoek CPVPD 2 (1 x 25 MW Concentrating photovoltaic or parabolic dish technology project)	14/12/16/3/3/2/291
	Karoshoek CPVPD 3 (1 x 25 MW Concentrating photovoltaic or parabolic dish technology project)	14/12/16/3/3/2/290
	Karoshoek CPVPD 4 (1 x 25 MW Concentrating photovoltaic or parabolic dish technology project)	14/12/16/3/3/2/289
Site 1.1	Karoshoek LF 1 (1 x 100 MW Linear Fresnel)	14/12/16/3/3/2/293
Site 1.2	Ilanga CSP 1 (1 x 100MW CSP facility – operational facility)	12/12/20/2056
Site 1.3	Karoshoek PT (1 x 100 MW Parabolic Trough)	14/12/16/3/3/2/294
Site 1.4	Karoshoek LFT 2 (1 x 100 MW Linear Fresnel or Parabolic Trough)	14/12/16/3/3/2/299
Site 3	Karoshoek Tower 1 (1 x 50MW Tower)	14/12/16/3/3/2/298
	Karoshoek Tower 2 (1 x 50MW Tower)	14/12/16/3/3/2/297
Site 4	Karoshoek LFTT 1 (1 X 100 MW Linear Fresnel or Parabolic Trough or Tower)	14/12/16/3/3/2/296



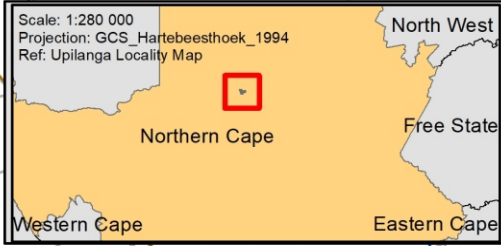
Upilanga Solar Park, Northern Cape Province

Locality Map



Legend

- Town
- Ilanga Substation
- 132/400KV Substation
- Access Roads
- Access Road 1
- Access Road 2
- Authorised and operational Ilanga Access Road
- National Road
- Regional Road
- Main Road
- Authorised and operational Ilanga Water Pipeline
- Water_Pipelines
- 100MW Preferred Grid Connection (PV 6,7,8 and 9)
- New Powerline
- 350MW Grid Connection Alternative 1 to New Powerline
- 350MW Grid Connection Alternative 2 to Authorised Powerline
- Authorised Powerline
- Existing Authorised Powerlines
- Existing Power Line
- Perennial River
- Non-perennial River
- Invertor Underground cable conection
- 350MW CSP Switching Station Connection
- Collector Substation (PV 6,7,8 and 9)
- Invertors
- 350MW PV Switching/Step-up Stations
- 350MW CSP Switching Station
- Ilanga Authorised 1 CSP - Operating
- Ilanga Authorised CSP Site 1.4
- Ilanga Authorised CSP Site 1.3
- Authorised Site 3 CSP
- PV 1 100MW (305,63 ha)
- PV 2 100MW (283,05 ha)
- PV 3 350MW (1018,24 ha)
- PV 4 350MW (1021,57 ha)
- PV 5 350MW (1007,92 ha)
- PV 6 100MW (297,68 ha)
- PV 7 100MW (278,51 ha)
- PV 8 100MW (300,66 ha)
- PV 9 100MW (295,97 ha)
- Urban / Built-up Area



Site reference	Project Name and Description	DEA Reference number
Site 5	Karoshhoek LFTT 2 (1 X 100 MW Linear Fresnel or Parabolic Trough or Tower)	14/12/16/3/3/2/295
Grid connection	Onsite substation/ switching yard and 400kV powerline from site 1.4, 3, 4 and 5 to the Eskom CSP MTS 400kV Powerline proposed to the west of the site	14/12/16/3/3/2/288

DETAILS OF THE PROJECT COMPONENTS

Collectively up to 2 GW will be generated by the facilities already authorised and proposed for the Upilanga Solar Park. The Upilanga PV1 and Upilanga PV2 facilities will comprise of the following key infrastructure and components:

- » Arrays of PV solar panels with a contracted capacity of up to 100MW each.
- » Mounting structures to support the PV panels (utilising either fixed-tilt / static, single-axis tracking, or double-axis tracking systems).
- » On-site inverters (step up facility) to convert power from Direct Current (DC) to an Alternative (AC)
- » 11kV/22kV/33kV collector substation to receive, convert and step up electricity from the PV facility to the 132kV Ilanga Substation;
- » Underground cables to connect to the on-site substations at authorised sites 1.3 and 1.4 and authorised grid connection to the Ilanga substation for PV facilities located at site 1 and 2.
- » Loop in and loop out of the 132kV lines connecting Ilanga Substation to Gordonia Substation or connect to the onsite- collector substation at authorised site 1.3 and 1.4 using underground cables.
- » Cabling between the project's components, to be laid underground where practical.
- » Water pipeline
- » Auxiliary buildings such as offices and workshop areas for maintenance and storage.
- » Temporary laydown areas required during construction.
- » Internal access roads and perimeter security fencing around the development area

OVERVIEW OF SOLAR PV TECHNOLOGY

Solar energy facilities, such as those which utilise PV technology use the energy from the sun to generate electricity through a process known as the **Photovoltaic Effect**. Generating electricity using the Photovoltaic Effect is achieved through the use of the following components:

Photovoltaic Modules

PV cells are made of crystalline silicon, the commercially predominant PV technology, that includes materials such as polysilicon and monocrystalline silicon. PV cells are arranged in multiples / arrays and placed behind a protective glass sheet to form a PV module (Solar Panel). Each PV cell is positively charged on one side and negatively charged on the opposite side, with electrical conductors attached to either side to form a circuit. This circuit

captures the released electrons in the form of an electric current (i.e. Direct Current (DC)). When sunlight hits the PV panels free electrons are released and flow through the panels to produce direct electrical (DC) current. DC then needs to be converted to alternating current (AC) using an inverter before it can be directly fed into the electrical grid.

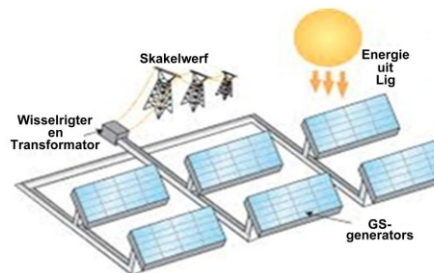


Figure 2: Overview of a PV cell, module and array / panel (Source: pveducation.com).

Inverters

Inverters are used to convert electricity produced by the PV panels from DC into Alternating Current (AC), to enable the facility to be connected to the national electricity grid. In order to connect a large solar facility such as the one being proposed to the national electricity grid, numerous inverters will be arranged in several arrays to collect, and convert power produced by the facility.

Support Structures

PV panels will be fixed to a support structure. PV panels can either utilise fixed / static support structures, or alternatively they can utilise single or double axis tracking support structures. PV panels which utilise fixed / static support structures are set at an angle (fixed-tilt PV system) so as to optimise the amount of solar irradiation. With fixed / static support structures the angle of the PV panel is dependent on the latitude of the proposed development, and may be adjusted to optimise for summer and winter solar radiation characteristics. PV panels which utilise tracking support structures track the movement of the sun throughout the day so as to receive the maximum amount of solar irradiation.

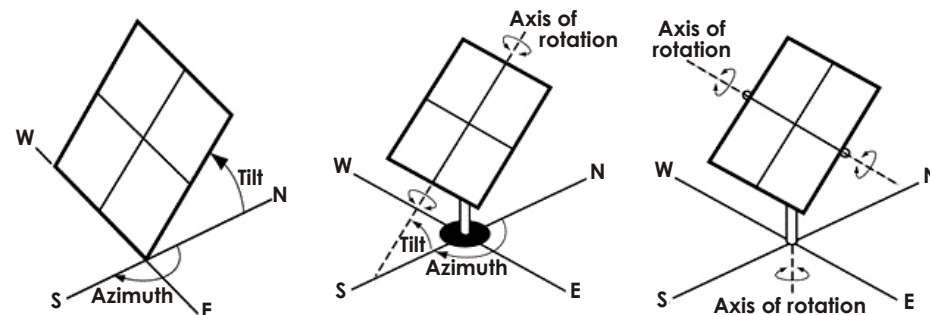


Figure 3: Overview of different PV tracking systems (from left to right: fixed-tilt, single-axis tracking, and double-axis tracking (Source: pveducation.com)).

PV panels are designed to operate continuously for more than 20 years, unattended and with low maintenance.

BASIC ASSESSMENT PROCESS

According to the 2014 EIA Regulations (GNR 326) published in terms of Section 24(5) of the National Environmental Management Act (No. 107 of 1998) (NEMA) (as amended), Emvelo Capital Projects (Pty) Ltd require Environmental Authorisation (EA) from the National Department of Environmental Affairs (DEA) in consultation with the Northern Cape of Environment and Nature Conservation (DENC) for the development and operation of the PV facilities with associated infrastructure associated with the Upilanga Solar Park.

In terms of Section 24(5) of NEMA, the EIA Regulations, 2014 (GNR 326), GNR 114 and Listing Notices (GNR 327, GNR 325, and GNR 324), the applications for EAs for Upilanga PV1 and Upilanga PV2 are subject to the completion of BA processes, as the entire extent of the study area for the projects is located within the Upington REDZ. Each application is required to be supported by comprehensive, independent environmental specialist studies undertaken in accordance with the EIA Regulations, 2014 (as amended).

A BA is an effective planning and decision-making tool. It allows for potential environmental consequences resulting from a proposed activity to be identified and appropriately managed during the construction, operation, and decommissioning phases of development. It also provides an opportunity for the project applicant to be forewarned of potential environmental issues, allows for the resolution of issue(s) identified and reported on as part of the BA processes, and provides opportunity for dialogue with key stakeholders and Interested and Affected Parties (I&APs).

Savannah Environmental has been appointed as the independent environmental consultants responsible for managing the application for Environmental Authorisation (EA) and undertaking the supporting basic assessment processes required to identify and assess potential environmental impacts associated with the project, as well as propose appropriate mitigation and management measures to be contained within an Environmental Management Programme (EMPr). I&APs will be actively involved through the public participation process.

WHAT ARE THE POTENTIAL ENVIRONMENTAL IMPACTS ASSOCIATED WITH THE PROPOSED PROJECT?

The project site will be assessed by specialists to identify the potential for environmental impacts. Specialist studies that are proposed as part of the BA processes include the following:

- » **Ecology and Avifauna:** considering impacts on, fauna, flora and avifaunal impacts, the construction of the solar park and the associated disturbance of vegetation and habitats may affect the ecology and biodiversity of the site.
- » **Soils, Land Use, Land Capability, and Agricultural Potential:** the construction of the facility

may result in soil degradation and/or resource loss through erosion.

- » **Aquatic:** the construction and operation of facility may result in loss of riparian systems, impact on secondary alluvial water courses and increase in sedimentation and erosion within the development footprint.
- » **Heritage (Archaeology and Palaeontology):** disturbance to or destruction of heritage sites and fossils may result during the construction phase through excavation activities.
- » **Visual:** the establishment of an industrial facility of this nature has the potential to affect the visual aesthetics within the area.
- » **Social:** the construction and operation of the facility may result in positive socio-economic opportunities in terms of local employment as well as negative impacts in terms of safety and security and land use characteristics

Site-specific studies will be undertaken to assess the localised impact of the proposed development, in order to delineate areas of sensitivity within the affected farm portions. Once the constraining environmental factors have been determined, the layout for the proposed Upilanga PV1 and Upilanga PV2 facilities can be finalised and presented in the final report to be submitted to the decision-making authority.

PUBLIC PARTICIPATION PROCESS

The sharing of information forms the basis of the public participation process and offers Interested and Affected Parties (I&APs) the opportunity to become actively involved in the Basic Assessment processes. The restrictions enforced in terms of Government Gazette 43096 which placed the country in a national state of disaster limiting the movement of people to curb the spread of the COVID-19 virus has placed some limitations on the commencement and continuation of the public consultation as part of an BA process. Alternative means of undertaking consultation has been designed and will be implemented by Savannah Environmental to ensure that I&APs are afforded sufficient opportunity to raise comments on the project through an interactive web-based platform readily available and accessible to any person illustrating interest in the project and enables the public participation process to be undertaken in line with Regulations 41 to 44 of the EIA Regulations, 2014, as amended. Comments and inputs are encouraged from Interested and Affected Parties (I&APs) during the BA process in order to ensure that potential impacts are considered within the environmental studies.

The public participation process aims to ensure that:

- » Information containing all relevant facts in respect of the application is made available to I&APs for review.
- » I&AP participation is facilitated in such a manner that they are provided with reasonable opportunity to comment on the proposed project.
- » Adequate review periods are provided for I&APs to comment on the findings of the BA Reports respectively.



In order to ensure effective participation, the public participation process includes the following:

- » Identifying I&APs, including affected and adjacent landowners and occupiers of land, and relevant Organs of State.
- » Placing site notices at the affected properties.
- » Placing advertisements in a local newspaper.
- » Compiling and maintaining a database of I&APs throughout the BA process.
- » Notifying I&APs of the commencement of the BA process, and distributing the Background Information Document (BID).
- » Notifying I&APs of relevant milestones throughout the BA process.
- » Notifying I&APs of the release of the Basic Assessment Reports for 30-day public review periods.
- » Holding consultation meetings with I&APs at various intervals throughout the process as applicable to provide an opportunity for I&APs to engage with the EIA project team.
- » Notifying I&APs of DEA's final decision on whether to grant or refuse Environmental Authorisation (EA), and the manner in which such a decision may be appealed.

YOUR RESPONSIBILITIES AS AN I&AP

In terms of the 2014 EIA Regulations (GNR 326), your attention is drawn to your responsibilities as an I&AP:

- » In order to participate in this BA process, you must register yourself on the I&AP database.
- » You must ensure that any comments regarding the proposed project are submitted within the stipulated timeframes.
- » You are required to disclose any direct business, financial, personal, or other interest that you may have in the approval or refusal of the application for the proposed project.

HOW TO BECOME INVOLVED

1. By responding by phone, fax, or e-mail, to the invitation for your involvement.
2. By returning the reply form to the relevant contact person.
3. By taking up the opportunities provided to engage with the project team.
4. By contacting the environmental consultants with queries or comments.
5. By reviewing and commenting on the Basic Assessment Reports within the stipulated 30-day public review periods. Registered I&APs will automatically be notified of the release of the BA Reports for comment, and the closing dates by which comments must be received.

If you consider yourself an I&AP for this project, we urge you to make use of the opportunities created by the public participation process to provide comment, raise issues and concerns which affect and / or interest you, or request further information. Your input forms a key element of the BA process.

By completing and submitting the accompanying reply form, you automatically register yourself as an I&AP for this project, and are ensured that your comments, concerns, or queries raised regarding the project will be noted.

COMMENTS AND QUERIES

Direct all comments, queries, or responses to:

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**To visit the online stakeholder engagement platform
and view project documentation, visit**

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