

APPENDIX C3
BACKGROUND INFORMATION DOCUMENT



SEPTEMBER
2022



BASIC ASSESSMENT AND PUBLIC PARTICIPATION PROCESS

PROPOSED DEVELOPMENT OF TRANSALLOYS SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITY AND ASSOCIATED INFRASTRUCTURE, WITHIN THE EMALAHLENI LOCAL MUNICIPALITY,

MPUMALANGA PROVINCE

Transalloys (Pty) Ltd propose to develop a Photovoltaic Solar (PV) Energy Facility with a capacity of up to 55MW and associated infrastructure on Portions 34 and 35 of the Farm Elandsfontein 309JS and Portions 20 and 24 of the Farm Schoongezicht 308JS, adjacent to their existing smelter complex on Clewer Road 1034, Witbank in the Emalahleni Local Municipality. The project site is located in the greater Nkangala District Municipality of Mpumalanga Province, approximately 34km west of Middelburg and 37km east of Bronkhorstspuit. The purpose of the project is to provide electricity to Transalloys for their current and future energy demands. The entire extent of the site falls within the Emalahleni Renewable Energy Development Zone (REDZ 9) and the International Corridor of the Strategic Transmission Corridors (**Figure 1**).

The nature and extent of the solar PV energy facility is explored in more detail in this Background Information Document (BID). A Basic Assessment (BA) process is being undertaken in support of an application for Environmental Authorisation (EA) for the development of the PV facility in accordance with GNR144 of February 2021.

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 proposed Transalloys Solar PV Energy Facility and associated infrastructure.
- » An overview of the Basic Assessment (BA) process and specialist studies being undertaken to assess the Transalloys Solar PV Energy Facility and associated infrastructure.
- » Details of how you can become involved in the BA process, receive information, or raise comments that may concern and/or interest you.

OVERVIEW OF THE PROJECT

A development area site is ~72.5ha on Portions 34 and 35 of the Farm Elandsfontein 309JS and Portions 20 and 24 of the Farm Schoongezicht 308JS has been identified by Transalloys (Pty) Ltd for the establishment of the Solar PV Energy Facility. These properties are owned by Transalloys. The proposed Solar PV facility will have a capacity of up to 55MW and is required to meet Transalloys' current electricity demands and future expansion requirements. Generated electricity will be fed directly into the smelter complex for direct consumption. The development of the power plant project would effectively mean that Transalloys would become less dependent on the Eskom electricity grid, thereby creating additional capacity within the Eskom grid for use by other electricity users.

The proposed solar PV energy facility will include the following infrastructure:

- » Solar PV array comprising PV modules and mounting structures.
- » Inverters and transformers.
- » Cabling between the panels.
- » On-site facility substation and power lines between the solar PV facility and the Transalloys smelter.
- » Security office, operations and control, and maintenance and storage laydown areas.
- » Access roads, internal distribution roads.



OVERVIEW OF SOLAR PV TECHNOLOGY

Solar energy facilities use energy from the sun to generate electricity through a process known as the **Photovoltaic Effect**. This effect refers to photons of light colliding with electrons, and therefore placing the electrons into a higher state of energy to create electricity. The solar fields of the PV facilities will comprise the following components:

Photovoltaic Cells, Modules and Panels:

A PV cell is made of silicone that acts as a semiconductor used to produce the photovoltaic effect. 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)). A solar PV module is made up of individual solar PV cells connected together, whereas a solar PV array is a system made up of a group of individual solar PV modules electrically wired together to form a much larger PV installation.

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

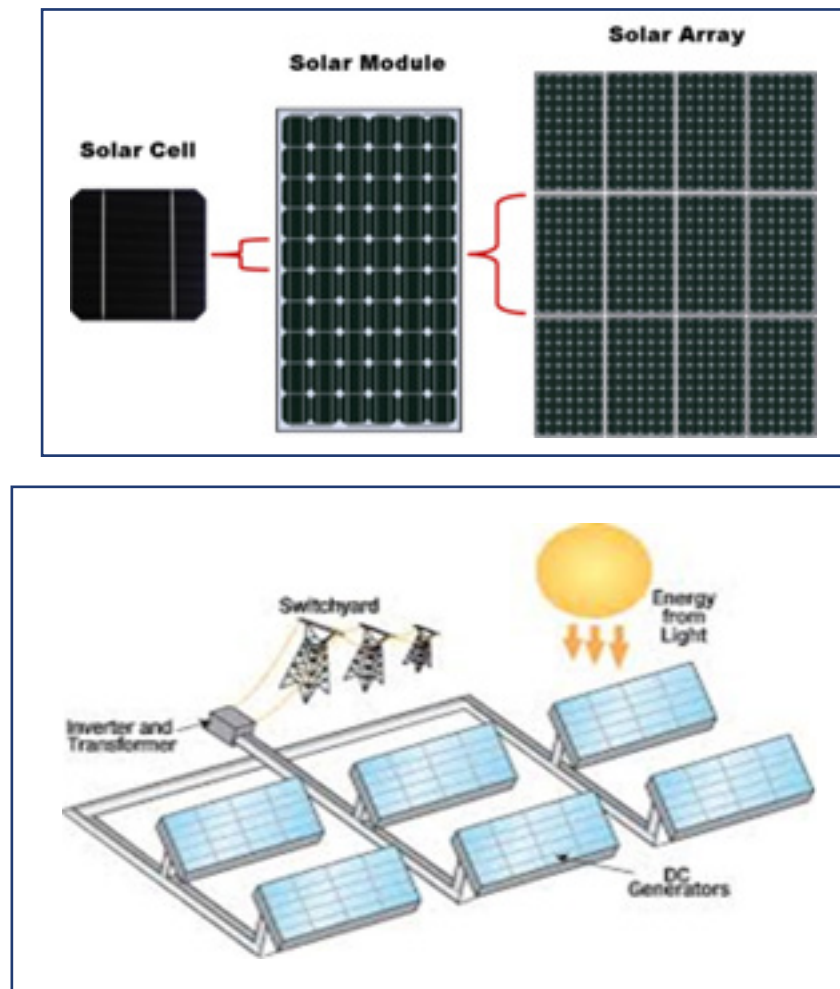


Figure 2: Overview of a PV cell, module, and array / panel (Source: pveducation.com).

Inverters

Inverters are used to convert electricity produced by the PV cells from DC into Alternating Current (AC) to enable the facility to be connected to the national electricity grid to deliver the power to Sasol. Numerous inverters will be arranged in several arrays to collect and convert power produced by the facility.

Support Structures

The PV panels will be fixed to support structures to maximise exposure to the sun. They can either utilise fixed / static support structures, or alternatively single or double axis tracking support structures. PV panels which utilise fixed / static support structures are set at an angle (fixed-tilt PV system), 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, to receive the maximum amount of solar irradiation.

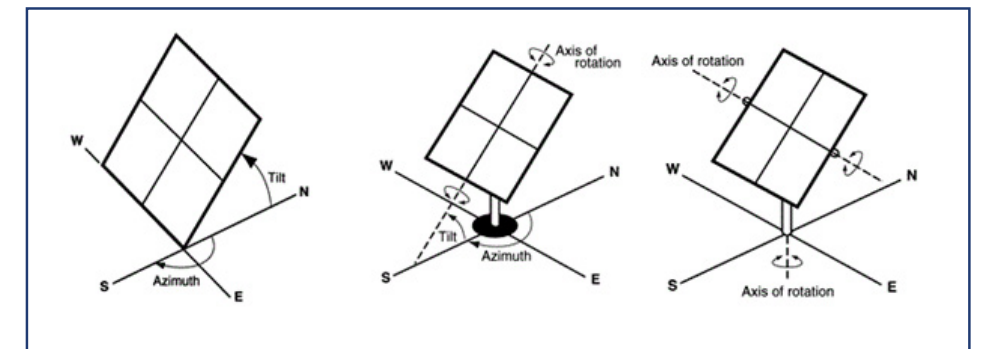


Figure 3: Overview of different PV tracking systems (from left to right: fixed-tilt, single-axis tracking, and double-axis tracking (Source: pveducation.com)).



Bifacial Solar Panel Technology

Bifacial (“two-faced”) modules produce solar power from both sides of the panel. Traditional solar panels capture sunlight on one light-absorbing side. The light energy that cannot be captured is simply reflected away. Bifacial solar panels have solar cells on both sides, which enables the panels to absorb light from the back and the front (refer to Figure 4). Practically speaking, this means that a bifacial solar panel can absorb light reflected off the ground or another material. In general, more power can be generated from bifacial modules for the same area, without having to increase the development footprint.

The optimum tilt for a bifacial module has to be designed so as to capture a big fraction of the reflected irradiation. Use of trackers is recommended so the modules can track the sun’s movement across the sky, enabling them to stay directed to receive the maximum possible sunlight to generate power.

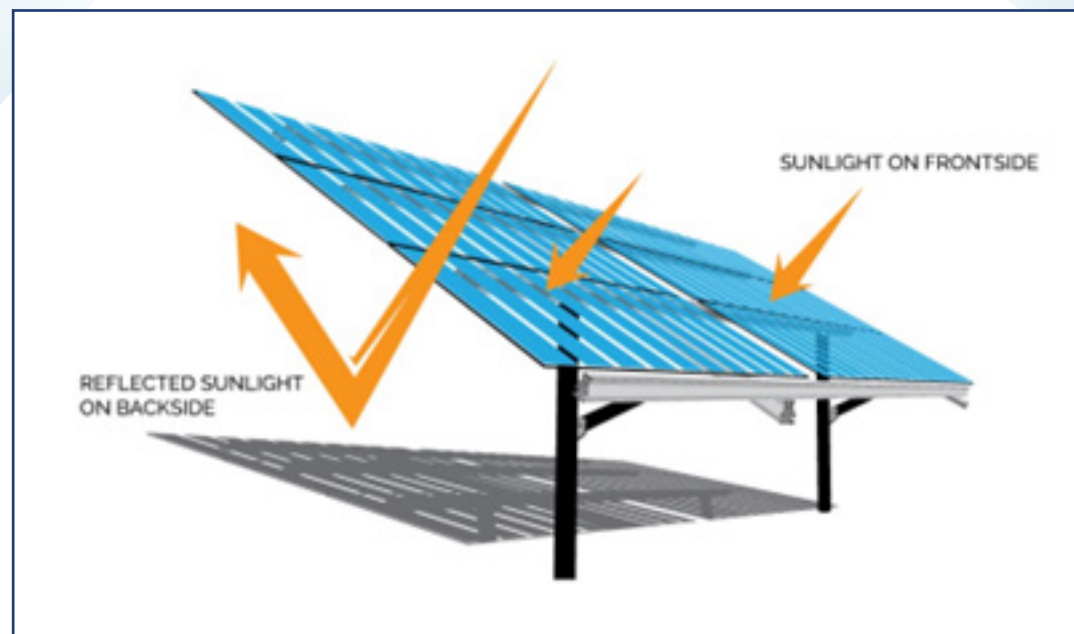


Figure 4: Diagram showing how bifacial Solar PV panels work (Source: <https://sinovoltaics.com/learning-center/solar-cells/bifacial-solar-modules/>)

BASIC ASSESSMENT PROCESS

In accordance with the Environmental Impact Assessment (EIA) Regulations, 2014, as amended, published in terms of Section 24(5) of the National Environmental Management Act (No. 107 of 1998) (NEMA), Transalloys (Pty) Ltd requires Environmental Authorisation (EA) from the Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs, for the development of the proposed Solar PV Energy Facility. The project falls within the Emalahleni REDZ, and as such a Basic Assessment (BA) process is applicable in accordance with GNR144 of February 2021. The application for EA is required to be supported by comprehensive, independent environmental specialist studies to be undertaken in accordance with Appendix 6 of the EIA Regulations, 2014, as amended, and where relevant, in line with the gazetted Specialist Protocols.



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 dialogue with key stakeholders and Interested and Affected Parties (I&APs).

Savannah Environmental has been appointed as the independent environmental consultant responsible for managing the application for EA, undertaking the supporting BA process required to identify and assess potential environmental impacts associated with the project, and proposing appropriate mitigation and management measures to be contained within the Environmental Management Programme (EMPr) for the facility.

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

Site-specific studies will be undertaken to assess the potential impact of the proposed development in order to delineate areas of sensitivity within the affected farm portion, assess impacts associated with the project and make recommendations regarding avoidance, management and mitigation of impacts. Studies will be informed by available information and detailed field investigations undertaken in accordance with the relevant guidelines and Specialist Assessment Protocols, where relevant. Once the constraining environmental factors have been determined, the layouts for the proposed facilities can be determined and presented in the EIA reporting.

Specialist studies that are to be undertaken as part of the BA process include the following:

Specialist study	Scope
Biodiversity Impact Assessment	Assessment of impacts on ecology, fauna and flora associated with disturbance of vegetation, fauna, habitats and ecological processes within the project area.
Wetland and freshwater Impact Assessment	Assessment of impacts on freshwater resources such as drainage lines, rivers, and wetlands within the project and surrounding areas.
Avifauna Impact Assessment	Pre-construction monitoring in terms of the relevant guidelines to inform the assessment of the impact on avifaunal habitats and sensitive species.
Soils and Agricultural Potential Assessment	Determination of land types within the project area, and assessment of the significance of loss of agricultural land due to the project development and impacts relating to soil degradation and/or erosion.
Heritage Impact Assessment (Archaeology and Palaeontology)	Assessment of impacts on heritage resources due to disturbance or destruction of heritage sites and fossils during the construction phase through excavation activities, and assessment of impacts on heritage resources during operation as a result of visual impact.
Visual Impact Assessment	Determination of the presence of visual sensitive receptors in the area and assessment of the impact of the solar PV facilities and the grid connection solution on these receptors and the overall aesthetics within the area.
Social Impact Assessment	Assessment the positive and negative impacts on the social as a result of the construction and operation of the facilities.



PUBLIC PARTICIPATION PROCESS

The sharing of information forms the basis of the public participation process and offers I&APs the opportunity to become actively involved in the BA process. Comments and inputs from I&APs are encouraged to ensure that potential impacts are considered throughout the BA process. 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.
- » An adequate review period is provided for I&APs to comment on the findings of the Basic Assessment Report.

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.
- » 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 BID (this document).
- » Making information available on the project, via a dedicated webpage.
- » Providing an opportunity for I&APs to engage with the project team.
- » Placing site notices at the affected properties.
- » Placing an advertisement in a local newspaper.
- » Notifying I&APs of the release of the BA Report for a 30-day review and comment period.
- » Providing an opportunity to engage with the project team via appropriate virtual platform, in person (where required) or telephone.
- » Notifying I&APs of the decision on whether to grant or refuse the EA, and the manner in which such a decision may be appealed.

YOUR RESPONSIBILITIES AS AN I&AP

In terms of the EIA Regulations, 2014, as amended, and the Public Participation Guidelines, 2014, your attention is drawn to your responsibilities as an I&AP:

- » In order to participate in the BA process, you must register yourself on the I&AP database.
- » 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.
- » You must ensure that any comments regarding the proposed project are submitted within the stipulated timeframe.

HOW TO BECOME INVOLVED

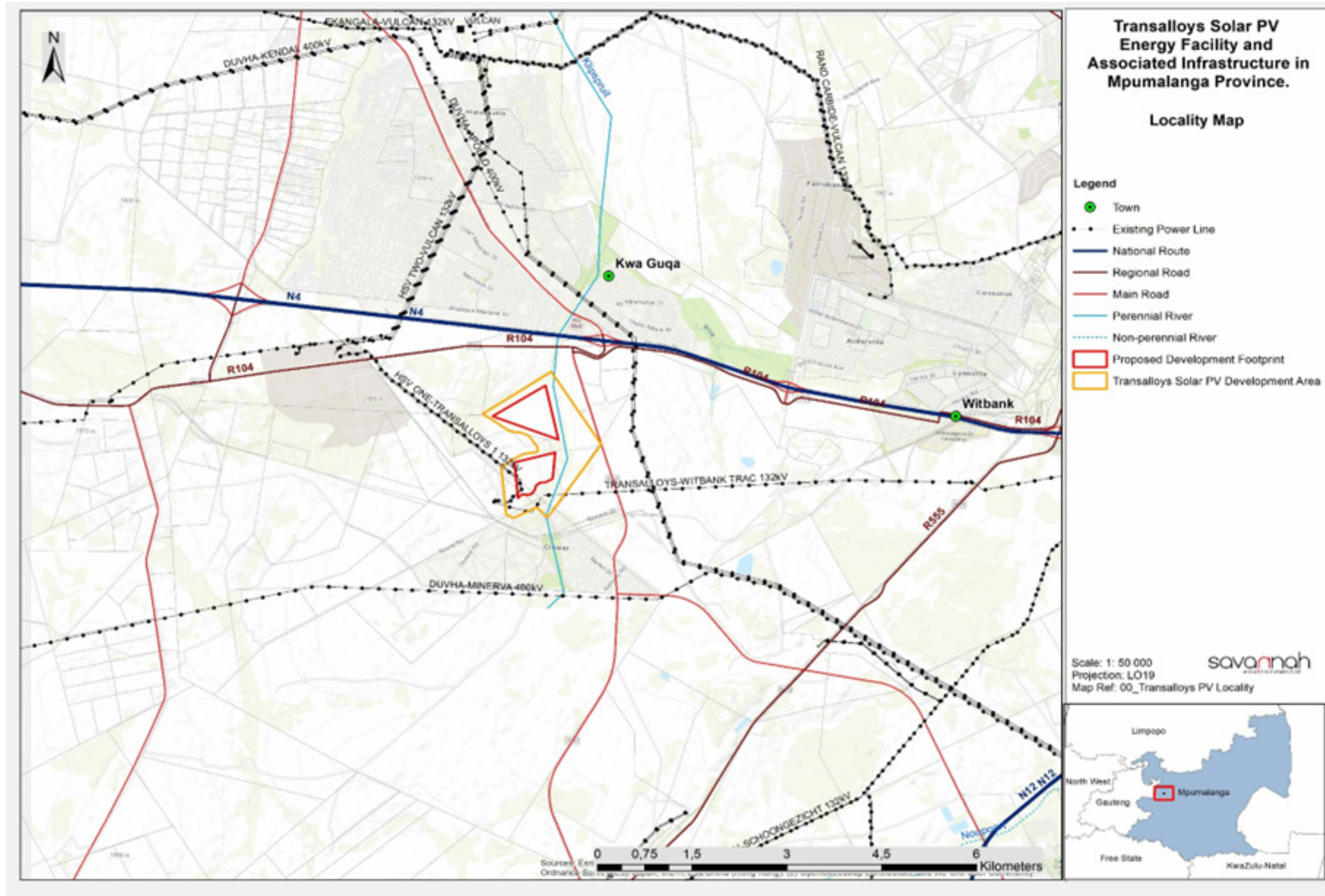
- » By responding by phone, fax, or e-mail, to the invitation for your involvement.
- » By returning the reply form to the relevant contact person.
- » By engaging with the project team on the online stakeholder engagement platform during the BA process.
- » By contacting the environmental consultant with queries or comments.
- » By reviewing and commenting on the BA Report within the stipulated 30-day review and comment period.

If you consider yourself an I&AP for the proposed 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 the proposed project, and are ensured that your comments, concerns, or queries raised regarding the project will be noted. Please note that all comments received will be included in the project documentation. This may include personal information.



Figure 1: Locality Map of the proposed Transalloys Solar PV Energy Facility with a capacity of up to 55MW and associated infrastructure.





COMMENTS AND QUERIES

Direct all comments, queries or responses to:

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To view project documentation, visit

www.savannahsa.com/public-documents/energy-generation/

