

# BACKGROUND INFORMATION DOCUMENT

## Environmental Impact Assessments for the proposed Paleso and Siyanda Solar Power Plants near Viljoenskroon, Free State Province



ENVIRONAMICS

### 1. Introduction

The activities entail the development of photovoltaic solar facilities and associated infrastructure on the Remaining Extent of the farm Grootdraai 468 and the Remaining Extent of Portion 1 of the farm Grootdraai 468, Registration Division Viljoenskroon, Free State Province situated within the Tsansabane Local Municipality area of jurisdiction. The town of Viljoenskroon is located approximately 9 km east-southeast of the proposed development (refer to the attached locality maps).

The projects entail the generation of up to 150MW electrical power through photovoltaic (PV) panels. The total footprint of the projects will approximately be 337 and 283 hectares respectively (including supporting infrastructure on site). The properties on which the facilities are to be constructed will be leased by Paleso and Siyanda Solar Power Plant (RF) (Pty) Ltd. from the property owners, for the lifespan of the project (minimum of 20 years).

Paleso and Siyanda Solar Power Plants will be required to apply for a generation license from the National Energy Regulator of South Africa (NERSA). Depending on the economic conditions following the lapse of this period, the facilities may either be decommissioned or the power purchase agreement may be renegotiated and extended. The purpose of this background information document (BID) is to provide interested and affected parties (I&APs) with:

- Information on the need for an Environmental Impact Assessments (EIAs);
- An overview of the proposed PV solar power plants;
- An overview of the EIA process and specialist studies being conducted to explain the potential impacts associated with the proposed facilities; and

- Details of how I&APs may become involved in the process, receive information, or raise issues, which may concern and/or interest them.

### 2. The need for an EIA

The EIA Regulations, 2014 (GN. R.982 as amended in 2017) published in terms of the National Environmental Management Act (Act No. 107 of 1998) determine that an environmental authorisation is required for certain listed activities, which might have detrimental impacts on the environment. The following activities have been identified with special reference to the proposed development and are listed in the EIA Regulations:

- Activity 11(i) (GN.R. 983): *“The development of facilities or infrastructure for the transmission and distribution of electricity outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts.”*
- Activity 28 (ii) (GN.R. 983): *“Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture or afforestation on or after 1998 and where such development (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare.”*
- Activity 24 (ii) (GN.R. 983): *“The development of a road (ii) with reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 meters.”*
- Activity 1 (GN.R. 984): *“The development of facilities or infrastructure for the generation of electricity from a renewable resource where the electricity output is 20 megawatts or more...”*
- Activity 15 (GN.R. 983): *“The clearance of an area of 20 hectares or more of indigenous vegetation.”*

Being listed under Listing Notice 1 and 2 (GN.R. 983 & 984) implies that the developments are considered as potentially having a significant impact on the environment. Since the sites are located in Renewable Energy Development Zone (REDZ) and therefore a 'basic assessment (BA) process' is required as described in Regulation 19. The 'basic assessment process' involves the identification and assessment of environmental impacts through specialist studies, as well as public participation.

### 3. Project description

The activities entail the development of two individual PV solar power plants and associated infrastructure on the Remaining Extent of the farm Grootdraai 468 and the Remaining Extent of Portion 1 of the farm Grootdraai 468, Registration Division Viljoenskroon, Free State. The key components of the individual proposed projects are described below:

- PV Panel Array - To produce up to 150MW, the proposed facilities will require numerous linked cells placed behind a protective glass sheet to form a panel. Multiple panels will be required to form the solar PV arrays which will comprise the PV facility. The PV panels will be tilted at a northern angle in order to capture the most sun.
  - Wiring to Inverters - Sections of the PV array will be wired to inverters. The inverter is a pulse width mode inverter that converts direct current (DC) electricity to alternating current (AC) electricity at grid frequency.
  - Connection to the grid - Connecting the array to the electrical grid requires transformation of the voltage from 480V to 33kV to 132kV. The normal components and dimensions of a distribution rated electrical substation will be required. Output voltage from the inverter is 480V and this is fed into step up transformers to 132kV. Onsite substations will be required on the site to step the voltage up to 132kV, after which the power will be evacuated into the national grid. It is expected that generation from the facilities will tie in with Vaal Reefs Nine 275/50kV Substation. The Projects will each inject up to 100MW into the National Grid. The installed capacity will be approximately 150MW per project.
- The preferred power line route is located north east of the project footprints. The route from the sites to the Vaal Reefs substation is approximately 3.5 kilometres long. The proposed power line will be assessed within a 100m wide corridor.
- Electrical reticulation network – An internal electrical reticulation network will be required and will be laid ~2-4m underground as far as practically possible.
  - Supporting Infrastructure – The following auxiliary buildings with basic services including water and electricity will be required on the sites:
    - - Office (~200m<sup>2</sup>);
    - - Switch gear and relay room (~400m<sup>2</sup>);
    - - Staff lockers and changing room (~200m<sup>2</sup>); and
    - - Security control (~60m<sup>2</sup>)
  - Battery storage – Battery Storage Facilities with a maximum height of 8m and a maximum volume of 1,120 m<sup>3</sup> of batteries and associated operational, safety and control infrastructure will be required.
  - Roads – Access will be obtained via a gravel road off the R30 Provincial Road. An internal site road network will also be required to provide access to the solar field and associated infrastructure. The access and internal roads will be constructed within a 25-meter corridor.
  - Fencing - For health, safety and security reasons, the facility will be required to be fenced off from the surrounding farm. Fencing with a height of 2.5 meters will be used.

#### 4. Specialist studies to be conducted

There are a number of environmental impacts, both positive and negative that are associated with photovoltaic solar energy facilities. Specialist studies will be conducted to identify and assess these potential impacts. Specialist studies will be guided by existing information, field observations and input from the public participation process. For these projects, the following specialist studies have been identified as relevant:

- Heritage Impact Assessment
- Ecological Fauna and Flora Habitat Survey
- Visual Impact Assessment
- Soil, Land Capability and Agricultural Potential Study
- Geotechnical study
- Social Impact Assessment
- Avifaunal Study
- Palaeontological Impact Assessment
- Traffic Impact Assessment

#### 5. The EIA process and timeline for the projects

Public participation is an integral part of the EIA process and aims to involve Interested and Affected Parties (I&APs) in the process by notifying them of the proposed project and encouraging them to voice their issues and concerns.

Through the EIA process of the projects, the process is transparent and allows I&APs to comment on the projects or raise concerns, which are included in the respective Basic Assessment Reports and are taken into consideration during the authorities' assessment of the projects. Table 1 indicates the key steps of the EIA process and the timelines for these projects. The sites are located in Renewable Energy Development Zone (REDZ) and therefore a 'basic assessment (BA) process' is required as described in Regulation 19 – 20.

**Table 1:** Key steps of the EIA process

Activity	Prescribed timeframe	Timeframe
Public participation (BID)	30 Days	26 March - 27 April 2021

Conduct specialist studies	2 Months	March - April 2021
Submit application form and Draft BAR	-	May 2021
Public participation (DBAR)	30 Days	May 2021
Submit Final BAR	90 Days	June 2021
Decision	57 Days	June / August 2021
Public participation (decision) & submission of appeals	20 Days	Aug 2021

#### 6. Your involvement

I&APs include individuals, communities or groups whose interest may be positively or negatively affected by the proposed development. You may get involved in the public participation process by:

- Registering as an I&AP.
- Submitting your issues, concerns and questions in writing on the attached comments and response form or sending an email to [chrsitia@environamics.co.za](mailto:chrsitia@environamics.co.za).
- Attending any public meetings which may be held during the course of the EIA processes. As a registered I&AP you will automatically be invited to attend these meetings.
- Reviewing and commenting on the reports within the stipulated public review periods.

#### 7. Comments and queries

All comments and queries may be directed to the following contact person:

Contact person: Christia van Dyk  
Telephone: 083 450 0406 (Cell)  
Electronic mail: [christia@environamics.co.za](mailto:christia@environamics.co.za)