



# ENVIRONAMICS

Environmental Consultants

## BACKGROUND INFORMATION DOCUMENT

Basic Assessments for the proposed Thakadu Solar Power Plant near Viljoenskroon, Free State Province

### 1. Introduction

The activities entail the development of photovoltaic solar facility and associated infrastructure on the Farm Groot Vaders Bosch No. 592, Registration Division Viljoenskroon, Free State Province situated within the Moqhaka Local Municipality area of jurisdiction. The town of Viljoenskroon is located approximately 32 km south-east of the proposed development (refer to the attached locality maps).

The project entails the generation of up to 150MW electrical power through photovoltaic (PV) panels. The total footprint of the project will approximately be 326 hectares (including supporting infrastructure on site). The property on which the facility is to be constructed will be leased by Thakadu Solar Power Plant (RF) (Pty) Ltd from the property owner, for the lifespan of the project (minimum of 20 years).

Thakadu Solar Power Plant 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 facility 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 a Basic Assessment (BA);
- An overview of the proposed PV solar power plant;
- An overview of the Basic Assessment 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.326 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. 327): *“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 24 (ii) (GN.R. 327): *“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 28 (ii) (GN.R. 327): *“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 1 (GN.R. 325): *“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. 325): “The clearance of an area of 20 hectares or more of indigenous vegetation.”

Being listed under Listing Notice 1 and 2 (GN.R. 327 & 325) implies that the development is considered as potentially having a significant impact on the environment. The site is located in a 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 a PV solar power plant and associated infrastructure on the Farm Groot Vaders Bosch No. 592, Registration Division Viljoenskroon, Free State Province. 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. An onsite substation will be required on the site to step the voltage up to 132kV, after which the power will be evacuated into the national grid via the proposed power line. It is expected that generation from the facility will tie in with either the existing Vaal Reefs Eleven Substation or two options within the same assessment corridor, the existing Mercury-South Vaal 2 132kV Power Line or the South Vaal-Carrdell 132kV. The

Project will inject up to 100MW into the National Grid. The installed capacity will be approximately 150MW.

- 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 1,740 m<sup>3</sup> of batteries and associated operational, safety and control infrastructure will be required.
- Roads – Access will be obtained via the Stokkiesdraai road to the north of the site. 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 BA process and timeline for the projects

Public participation is an integral part of the BA 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 BA process of the project, the process is transparent and allows I&APs to comment on the projects or raise concerns, which are included in the Basic Assessment Report and are taken into consideration during the authorities' assessment of the project. Table 1 indicates the key steps of the BA process and the timelines for the project. The site is located in a 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 BA process

Activity	Prescribed timeframe	Timeframe
Public participation (BID)	30 Days	29 Oct. - 29 Nov. 2021
Conduct specialist studies	2 Months	Oct. - Nov 2021
Submit application form and Draft BAR	-	December 2021
Public participation (DBAR) (Excl. 15 Dec. 21 – 05 Jan.	30 Days	Dec. 2021 – Jan. 2022
Submit Final BAR	90 Days	Feb. 2022
Decision	57 Days	April 2022
Public participation (decision) & submission of appeals	20 Days	May 2022

## 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 [chrstia@environamics.co.za](mailto:chrstia@environamics.co.za).
- Attending any public meetings which may be held during the course of the BA process. 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: 078 470 5252 (Cell)  
Electronic mail: [christia@environamics.co.za](mailto:christia@environamics.co.za)