



# ENVIRONAMICS

Environmental Consultants

## BACKGROUND INFORMATION DOCUMENT

Environmental Impact Assessment for the proposed Carmel Solar 3 Power Plant near Carletonville, Gauteng and North West Provinces

### 1. Introduction

The activities entail the development of an up to 240MW photovoltaic solar facility and associated infrastructure on Remaining Extent, Portion 1 and Portion 3 of the Farm Kleinfontein No. 141, Portion 4 of the Farm Turffontein No. 126 and Portions 1, 11, 23 and 28 of the Farm Doornfontein No. 118, situated within the Merafong Local Municipality and JB Marks Local Municipality area of jurisdiction, in the Gauteng and North West Provinces respectively. The town of Carletonville is located approximately 13km northeast of the proposed development (refer to the attached locality maps).

The project entails the generation of up to 240MW electrical power through photovoltaic (PV) panels. The total footprint of the project will approximately be 480 hectares (including supporting infrastructure on site). The property on which the facility is to be constructed will be leased by Carmel Solar 3 (Pty) Ltd from the property owner, for the lifespan of the project (minimum of 20 years). 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 an Environmental Impact Assessment (EIA);
- An overview of the proposed solar power plant;
- 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.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(ii) (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 56 (ii) (GN.R. 327): *“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 8metres...”*
- 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.”*
- Activity 4 (c)(iv) & (h)(iv) (GN.R. 324): *“The development of a road wider than 4 metres with a reserve less than 13,5 metres, (c) Gauteng, (iv) Sites identified as Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or in bioregional plans; (h) North West, (iv) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority”*
- Activity 12 (c)(ii) & (h)(iv) (GN.R. 324): *“The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation in (c) Gauteng (iv) Within Critical Biodiversity Areas or Ecological Support Areas identified in the Gauteng Conservation Plan or bioregional plan; (h) North West (iv) within Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority”*
- Activity 18 (c)(iv) & (h)(v) (GN.R. 324): *“The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre in (c) Gauteng (v) Sites identified as Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or in bioregional plans; (h) North West within (v) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority;”*

Based on the activities triggered, the Application for Environmental Authorisation is subject to the completion of full Scoping and EIA (S&EIA) process as described in Regulations 21-23. The Scoping and EIA process involves the identification and assessment of environmental impacts through specialist studies, the recommendation of appropriate mitigation measures as well as public participation.

### 3. Project description

The activities entail the development of a PV solar power plant and associated infrastructure on Remaining Extent, Portion 1 and Portion 3 of the Farm Kleinfontein No. 141, Portion 4 of the Farm Turffontein No. 126 and Portions 1, 11, 23 and 28 of the Farm Doornfontein No. 118, situated within Merafong Local Municipality and JB Marks Local Municipality areas of jurisdiction, in Gauteng and North

West Provinces. The key components of the individual proposed projects are described below:

- PV Panel Array - To produce up to 240MW, the proposed facility will require numerous linked cells placed behind a protective glass sheet to form a panel.
- 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 to the existing Eskom Carmel Main Transmission Substation via the proposed power line. The grid connection route will be assessed within a 200m wide (up to 550m wide in some instances) corridor. The Project will inject up to 240MW into the National Grid.
- Supporting Infrastructure – The following auxiliary buildings with basic services including water and electricity will be required on the sites:
  - Office;
  - Switch gear and relay room;
  - Staff lockers and changing room; and
  - Security control
- Battery storage – Battery Storage Facilities with a maximum height of 8m and a maximum volume of up to 4ha of batteries and associated operational, safety and control infrastructure will be required.
- Roads – Access will be obtained via R501 regional road and a gravel farm road adjacent to the development area. 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
- Wetland Assessment
- 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.

The process undertaken will be transparent and allow I&APs to comment on the project or raise concerns, which will be included and considered in the respective Scoping and EIA Reports. Table 1 indicates the key steps of the EIA process and the timelines for the project.

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

Activity	Prescribed timeframe	Timeframe
Public participation (BID)	30 Days	Nov. 2022
Conduct specialist studies	2 Months	Oct. – Nov. 2022

Submit application form and Draft Scoping Report	-	Dec. 2022
Public participation (Draft Scoping Report)	30 Days	Dec. 2022 – Feb. 2023
Submit Final Scoping Report	44 Days	March 2023
Approval of Final Scoping Report	43 Days	June 2023
Submit Draft EIA Report	106 Days	Oct. 2023
Public Participation	30 Days	Oct. – Nov. 2023
Submit Final EIA Report	-	Nov. 2023
Decision	107 Days	March 2024
Public participation (decision) & submission of appeals	20 Days	April 2024

#### 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 participation@environamics.co.za.
- 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:** Ansone' Esterhuizen  
**Telephone:** 076 714 1234 (Cell)  
**Electronic mail:** participation@environamics.co.za