



ENVIRONAMICS

Environmental Consultants

BACKGROUND INFORMATION DOCUMENT

Environmental Impact Assessment for the proposed Makoaneng Solar Power Plant near Bloemfontein, Free State Province

1. Introduction

The activities entail the development of an up to 450MW photovoltaic solar facility and associated infrastructure on Portion 1 of the farm Avondzon No. 278 and Farm Nakob No. 750, Remainder of the farm Selborne No. 392, Farm Buxton No. 581 and Farm Goedehoop No. 251, Registration Division Brandfort and Thaba Nchu, situated within the Mangaung Local Municipal area of jurisdiction. The town of Bloemfontein is located approximately 35km southwest of the proposed development (refer to the attached locality maps).

The project entails the generation of up to 450MW electrical power through photovoltaic (PV) panels. The total footprint of the project will be approximately 1260 hectares (including supporting infrastructure on site). The property on which the facility is to be constructed will be leased by Makoaneng Solar Power Plant (RF) (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(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. 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 Portion 1 of the farm Avondzon No. 278 and Farm Nakob No. 750, Remainder of the farm Selborne No. 392, Farm Buxton No. 581 and Farm Goedehoop No. 251, Registration Division Brandfort and Thaba Nchu, situated within the Mangaung Local Municipal area of jurisdiction, Free State Province. The key components of the individual proposed projects are described below:

- PV Panel Array - To produce up to 450MW, the proposed facility 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 connect to the national grid via the Harvard/Merapi 1 275KV Overhead Line that traverse the property. The grid connection route will be assessed within a 200 meters wide (up to 5505 in some instances) grid connection corridor. The Project will inject

up to 450MW into the National Grid. The installed capacity will be approximately 500MW.

- Supporting Infrastructure – All associated infrastructure will be constructed within the limits of the infrastructure and ancillary complex which will include an on-site substation, Battery Energy Storage System, Operations and Maintenance buildings etc.
- Battery storage – Battery Storage Facilities with a maximum height of 8m and a maximum volume of 1,740 m³ of batteries and associated operational, safety and control infrastructure will be required.
- Roads – Access will be obtained via the N1 national road to the north of the site and via another unnamed road to the south 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
- Wetland Baseline and Risk 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	17 Mar. – 19 Apr. 2023
Conduct specialist studies	2 Months	Feb. – Mar. 2023
Submit application form and Draft Scoping Report	-	Apr. 2023
Public participation (Draft Scoping Report)	30 Days	Apr. – May. 2023
Submit Final Scoping Report	44 Days	May 2023
Approval of Final Scoping Report	43 Days	Jun./Jul. 2023
Submit Draft EIA Report	106 Days	Jul. 2023
Public Participation	30 Days	Jul. – Aug. 2023
Submit Final EIA Report	-	Sept. 2023
Decision	107 Days	Feb. 2024
Public participation (decision) & submission of appeals	20 Days	Mar. 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.

- Attending any public meetings which may be held during the course of the EIA 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: participation@environamics.co.za