

APRIL 2013

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

PROPOSED
KGABALATSANE
SOLAR FACILITY (30MW)
NORTH-WEST PROVINCE

DEA REF NO.:
14/12/16/3/3/2/510

BACKGROUND INFORMATION DOCUMENT

Built Environment Africa Energy Services (Pty) Ltd is proposing to expand the already authorised 2 x 10MW PV facilities on the farm Syferfontein, located south of the Odi Aerodrome near Kgabalatsane in the North-West Province (refer to attached map). The proposed project is to expand the facility such that the total facility capacity is 50MW. The option of Photovoltaic (PV) Technology is being investigated. The proposed facility is located approximately 18 km north-east of Brits in the North West Province.

The purpose of the proposed solar facility will be to evacuate the generated power into the Eskom electricity grid as part of the Department of Energy's Renewable Energy Independent Power Producer Programme (REIPPP). There are two alternatives for grid connection for this facility, i.e. a distribution substation located approximately 5km from the site, and a transmission substation located approximately 10km from the site.

Built Environment Africa Energy Services (Pty) Ltd will be required to apply for a generation license from the National Energy Regulator of South Africa (NERSA), as well as a power purchase agreement from Eskom (i.e. typically for a period of 20 - 25 years) in order to build and operate the proposed facility. As part of the agreement, Built Environment Africa Energy Services (Pty) Ltd will be remunerated per kiloWatt hour generated by Eskom who will be financially backed by government. Depending on the economic conditions following the lapse of this period, the facility can either be decommissioned or the power purchase agreement may be renegotiated and extended.

This property falls within the Madibeng Local Municipality. A broader area of approximately 60 hectares (ha) is being considered within which the facility is to be constructed. The nature and extent of this proposed facility is explored in more detail in this Background Information Document (BID).

AIM OF THIS BACKGROUND INFORMATION DOCUMENT

This BID aims to provide you, as an interested and/or affected party (I&AP), with:

- » An overview of the proposed Solar Energy Facility
- » An overview of the Environmental Impact Assessment process and studies being undertaken to assess the potential impacts, both positive and negative, associated with the proposed facility.
- » Details of how you can become involved in the process, receive information, or raise issues, which may concern and/or interest you.

PROJECT COMPONENTS

Through a technical feasibility study which considered favourable climatic conditions (solar renewable energy facilities are directly reliant on average solar radiation values for a particular area), access and capacity of the electricity grid, accessibility of the study site, and local site topography, a potentially feasible site has been identified by Built Environment Africa Energy Services (Pty) Ltd for the establishment of the proposed PV facility.

The solar energy facility is proposed to comprise the following infrastructure:

- » Photovoltaic (PV) panels with an installed capacity of up to 50 MW
- » A new on-site substation to evacuate the power from the facility via a 132kV power line into the Eskom grid. There are two alternatives for grid connection, i.e. a distribution substation located approximately 5km from the site, and a transmission substation located approximately 10km from the site.
- » Mounting structure to be either rammed steel piles or piles with pre-manufactured concrete footings to support the PV panels.
- » Cabling between the project components, to be laid underground where practical.
- » Internal access roads and fencing.
- » Workshop area for maintenance, storage, and offices.

The overall aim of the design and layout of the facility is to maximise electricity production through exposure to the solar radiation, while minimising infrastructure, operation and maintenance costs, as well as social and environmental impacts. The use of solar energy for power generation can be described as a non-consumptive use of natural resources which emits zero greenhouse gas emissions. The generation of renewable energy contributes to South Africa's electricity generating market which has been dominated by coal-based power generation.

RENEWABLE ENERGY TECHNOLOGY PROPOSED

Various renewable energy technologies are available for electricity generation. Renewable energy technologies offer an alternative to fossil fuels, thereby reducing the amount of CO₂ emissions into the atmosphere. The type of technology which is being considered for the proposed project is Photovoltaic (PV) Technology.

PHOTOVOLTAIC (PV) TECHNOLOGY

Solar energy facility, such as those using PV panels use the energy from the sun to generate electricity through a process known as the Photovoltaic Effect (see Figure 1). 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 PV facility will comprise of the following components:

The Photovoltaic Cell

Individual PV cells are linked and placed behind a protective glass sheet to form a photovoltaic panel. Other technologies that can be used include thin film

The Inverter

The photovoltaic effect produces electricity in direct current. Therefore an inverter must be used to change it to alternating current.

The Support Structure

The PV panels will be attached to a support structure approximately 2 meters off the

ground set at an angle so to receive the maximum amount of solar radiation. The angle of the panel is dependent on the latitude of the proposed facility and the angles may be adjusted to optimise for summer or winter solar radiation characteristics.

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



Figure 1: Illustration of a photovoltaic solar facility

THE NEED FOR AN ENVIRONMENTAL IMPACT ASSESSMENT

In terms of the EIA Regulations published in terms of Section 24(5) of the National Environmental Management Act (NEMA, Act No. 107 of 1998), Built Environment Africa Energy Services (Pty) Ltd requires authorisation from the National Department of Environmental Affairs (DEA) (in consultation with the North West Province: Department of Economic Development, Environment, Conservation and Tourism for the undertaking of the proposed project. This project has been registered with the DEA under application reference number 14/12/16/3/3/2/510.

In terms of sections 24 and 24D of NEMA, as read with the EIA Regulations of GNR 543, GNR544, GNR545, and GNR546, a Scoping and an EIA Phase are required to be undertaken for the proposed project. In order to obtain authorisation, comprehensive, independent environmental studies must be undertaken in accordance with the EIA Regulations.

An Environmental Assessment is an effective planning and decision-making tool. It allows the potential environmental consequences resulting from a technical facility during its establishment and its operation to be identified and appropriately managed. It provides the opportunity for the developer to be fore-warned of potential environmental issues, and allows for resolution of the issue(s) reported on in the as well as dialogue with affected parties.

In order to obtain authorisation for the project, comprehensive, independent environmental studies must be undertaken in accordance with the EIA Regulations of June 2010. Built Environment Africa Energy Services (Pty) Ltd has appointed Savannah Environmental, as the independent environmental consultants, to undertake the required environmental assessments to identify and assess all the potential environmental impacts associated with the proposed projects, and proposes appropriate mitigation and management measures in an Environmental Management Programme. As part of these environmental studies, I&APs will be actively involved through the public involvement process also being undertaken by Savannah Environmental.

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

A number of potential environmental impacts, positive and negative, associated with the PV solar energy facility. These include the following:

- » **Impacts on ecology, fauna, and flora:** the construction of the facility and the associated disturbance of vegetation and habitats may affect the ecology and biodiversity of the site.
- » **Impacts on geology and soil erosion:** the construction of the facility may affect the underlying geology and surface in terms of soil degradation and/or erosion.
- » **Impacts on agricultural potential:** solar facilities typically result in whole scale use and disturbance of a site, resulting in the area being unavailable for agricultural activities.
- » **Impacts on Heritage sites:** disturbance to or destruction of heritage sites and fossils may result during the construction phase through excavation activities.
- » **Impacts on visual aesthetics:** the establishment of an industrial facility of this nature has the potential to affect the visual aesthetics within the area.
- » **Social impacts:** the construction and operation of the facility may result in positive socio-economic opportunities in terms of local employment as well as negative impacts in terms of safety and security and land use characteristics.

Specialist studies will be undertaken within the EIA process to identify and assess these potential impacts as well as any other issues identified through the EIA process. The potential environmental impacts associated with not undertaking the proposed project will also be explored through the EIA process. Specialist studies will be guided by existing information, field observations and input from the public participation process. As an I&AP, your input is considered an important part of this process, and we urge you to become involved.

PUBLIC INVOLVEMENT PROCESS

The sharing of information forms the basis of the public involvement process and offers you the opportunity to become actively involved in the EIA processes from the outset. Comments and inputs from I&APs during the EIA processes are encouraged in order to ensure that potential impacts are considered within the ambit of the study.

The public involvement process aims to ensure that:

- » Information that contains all the 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 a reasonable opportunity to comment on the proposed project.
- » Adequate review periods are provided for I&APs to comment on the findings of the draft reports.

On-going communication with registered parties will ensure that you will be kept informed of the progress of the various processes, informed of details of public consultation meetings which are planned, and be advised when documentation is available for review and comment.

YOUR RESPONSIBILITIES AS AN I&AP

In terms of the EIA Regulations, your attention is drawn to your responsibilities as an I&AP:

- » In order to participate in this EIA process, you must register yourself on the project database.
- » You must ensure that any comments regarding the proposed project are submitted within the stipulated timeframes.
- » You are required to disclose any direct business, financial, personal or other interest which that you may have in the approval or refusal of the application for the proposed facility.

HOW TO BECOME INVOLVED

1. By responding (by phone, fax or e-mail) to our invitation for your involvement which has been advertised in local and regional newspapers.
2. By returning the attached Reply Form to the relevant contact person.
3. By attending the meetings to be held during the course of the project. As a registered I&AP you will automatically be invited to attend these meetings. Dates for public meetings will also be advertised in local and regional newspapers.
4. By contacting the consultants with queries or comments.
5. By reviewing and commenting on the draft reports within the stipulated 30-day public review periods.

If you consider yourself an I&AP for the proposed project, we urge you to make use of the opportunities created by the public involvement process to provide comment, or raise those issues and concerns which affect and/or interest you, and about which you would like more information. Your input into this process forms a key element of the EIA process.

By completing and submitting the accompanying reply form, you automatically register yourself as an I&AP for the project, and are ensured that your comments, concerns or queries raised regarding the project will be noted.

COMMENTS AND QUERIES

Direct all comments, queries or responses to:









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KGABALATSANE SOLAR PV FACILITY

Locality Map

Legend

-  Solar PV 1 (approved)
-  Solar PV 2 (approved)
-  Proposed Solar PV
-  Farm portion
-  Regional road
-  Non- Perennial river
-  Existing Power Line
-  Distribution Substation

0 0.5 1 2 Km

