

JULY 2012

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

PROPOSED

KLIP GAT SOLAR ENERGY FACILITY (75 MW)

NORTHERN CAPE PROVINCE

DEA REFERENCE NO.:  
14/12/16/3/3/2/354

BACKGROUND INFORMATION DOCUMENT

Klip Gat Solar Energy (Pty) Ltd is proposing to establish a commercial photovoltaic solar energy facility (75 MW) on a site approximately 20 km north west of Noupoot, Northern Cape Province. The project is known as the Klip Gat Solar Energy Facility (75MW). Based on a pre-feasibility analysis and site identification processes undertaken by Klip Gat Solar Energy (Pty) Ltd, a favourable area has been identified for consideration and evaluation through an environmental impact assessment process.

The purpose of the proposed PV facility will be to evacuate the generated power into the Eskom electricity grid. Klip Gat Solar Energy (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, Klip Gat Solar Energy (Pty) Ltd will be remunerated per kilo Watt 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.

In terms of the Department of Energy's (DoE) competitive bidding process for procuring renewable energy from Independent Power Producers in South Africa a threshold has been set for the maximum amount of megawatts per project entered into the bid. The export threshold for a single solar PV facility for submission into a bid has been set at 75 MW.

Klip Gat Solar Energy Facility (75MW) is located on Portion 2 of Farm Klip Gat 80 (total extent of 848 ha). This property falls within the Emthangeni Local Municipality.

The nature and extent of the 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 Klip Gat Solar Energy Facility (75MW).
- » An overview of the Environmental Impact Assessment processes 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 Klip Gat Solar Energy (Pty) Ltd for the establishment of the proposed PV facility.

The facility would include the following infrastructure:

- » An array of photovoltaic (PV) panels
- » A new on-site substation to evacuate the power from the facility into the Eskom
- » The substation is proposed to be connected via a loop-in loop-out connection to the existing 132kV power line or there will be an upgrade or construction of a new power line.
- » 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 CO<sub>2</sub> emissions into the atmosphere.

## PHOTOVOLTAIC (PV) TECHNOLOGY

Solar energy facilities, 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

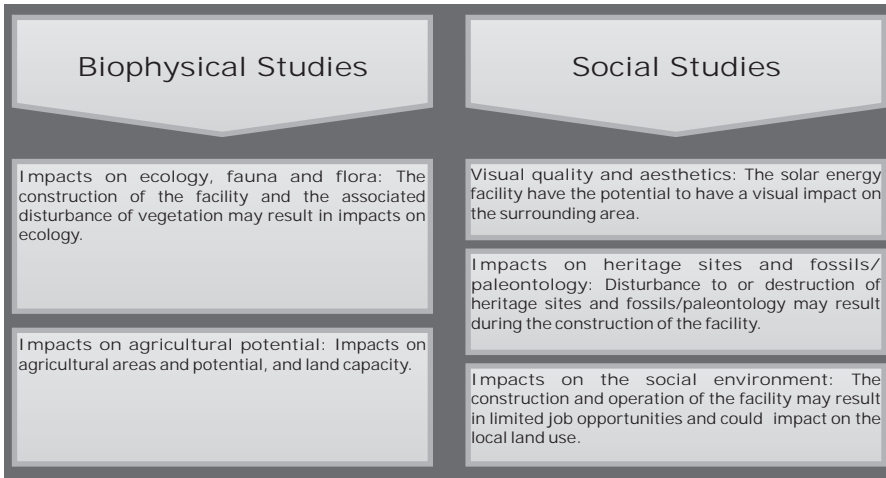
In terms of the EIA Regulations of June 2010 (Government Notice 543 – 546 published in terms of the National Environmental Management Act (NEMA; No. 107 1998), the construction of the proposed facility is a listed activity requiring environmental authorisation. In terms of this legislation, a power generation facility with a generating capacity of 20MW or more, and which occupies an area of more than 20ha requires the undertaking of an Environmental impact Assessment process. The project has been registered with the National Department of Environmental Affairs under Application Reference Number 14/12/16/3/3/2/354. The EIA process comprises two phases – i.e. Scoping and Impact Assessment - and involves the identification and assessment of environmental impacts through specialist studies, as well as public participation. This process would be relevant for the proposed Klip Gat Solar Energy Facility (75MW) which is proposed to be up to 75 MW in capacity.

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. Klip Gat Solar Energy (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 project, 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, are associated with the PV solar energy facility. These include the following:



Specialist studies will be undertaken within the EIA process to identify and assess these potential impacts. 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 and 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 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 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 these processes forms a key element of the EIA processes.

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:

Gabriele Wood of Savannah Environmental  
PO Box 148, Sunninghill, Johannesburg, 2157  
Phone: 011 234 6621  
Fax: 086 684 0547  
E-mail: [gabriele@savannahsa.com](mailto:gabriele@savannahsa.com)

To view project documentation, visit  
[www.savannahSA.com](http://www.savannahSA.com)

# Klip Gat Solar PV Energy Facility Locality Map

## Legend

- Places
- Railway line
- - - Existing Power Line
- National route
- Regional road
- Secondary road
- ..... Non Perennial river
- Waterbody
- SEF Farm Portion

