BASIC ASSESSMENT FOR THE PROPOSED CONSTRUCTION OF TWO SOLAR PHOTOVOLTAIC (PV) PLANTS ON PORTION 6 (PORTION OF PORTION 5) OF THE FARM SPES BONA 2355 DISTRICT IN BLOEMFONTEIN, FREE STATE

DEA Ref No SSS1: 14/12/16/3/3/1/1092
DEA Ref No SSS2: 14/12/16/3/3/1/1093

INTRODUCTION

Surya Power (Pty) Ltd (hereafter referred to as Surya) intends to construct 2X 5MW Solar Photovoltaic (PV) Power Plants on Portion 6 (Portion of Portion 5) of the Farm Spes Bona 2355, near Bloemfontein, Free State Province. The proposed PV Plants will be connecting to the existing Eskom 132kV/275kV Harvard MTS Substation located in the North-East of the proposed study area.

The proposed development falls within the jurisdiction of the Mangaung Metropolitan Municipality. The proposed development is located 12km west of Bloemfontein, in the Free State Province.

In accordance with the National Environmental Management Act, 1998 (Act No. 107 of 1998) as amended (NEMA), a Basic Assessment (BA) process is required for the proposed project as several listed activities are triggered by the proposed development.

PURPOSE OF THIS DOCUMENT

The purpose of this Background Information Document (BID) is to inform interested and/or affected parties (I&APs) about the Basic Assessment (BA) that is being conducted for the proposed construction of 2X 5MW Solar Power Plants near Bloemfontein.

In addition to supplying information about the proposed project and the BA process, this BID will also provide I&APs with the opportunity to:

- better understand the proposed project in order to provide comments and raise issues of concern;
- understand the environmental authorisation process in order to participate effectively;
- raise issues of concern and/or submit suggestions related to this application to enhance the proposed project;
- contribute local knowledge; and
- comment on the specialist studies that will be conducted.

BACKGROUND TO THE PROPOSED PROJECT

Factors such as increased economic growth and social development, rapid community development advancement among others have lead to the growth in demand for electricity in Southern Africa. By 2007, the electricity demand in South Africa had been growing at approximately 3% a year thus increasing pressure on South Africa's existing power generation capacity.

As one of its strategies to meet future energy consumption requirements, the country is opting for the use of renewable energy technologies such as Photovoltaic (PV) Plants. This technology is therefore fast becoming an important energy option in South Africa. As a result, Surya Power, plan to establish 2 X 5MW Solar Photovoltaic (PV) Power Plants on Portion 6 (Portion of Portion 5) of the Farm Spes Bona 2355, near Bloemfontein.

PROJECT INFORMATION

The proposed project is to consist of:

- the proposed construction of 2 X 5MW Solar Photovoltaic (PV) Power Plants on Portion 6 (Portion of Portion 5) of the Farm Spes Bona 2355,
- the establishment of associated infrastructure as required (such as substations. Power lines, road infrastructure).

PV power plant key components and associated infrastructure:

The key components of the proposed solar power facility include the following:

- PV solar Panels and arrays;
- PV Panel mountings;
- DC-AC current inverters and transformers; and
- Underground cabling / overhead power lines.

The PV panels that are proposed to be used typically measure up to 6 m² in size per panel. The PV panels will be arranged in rows (arrays) and made up of sections depending on the optimal final design and layout of the development. The PV panels will be mounted on frames with a maximum height of approximately 3 m above the ground, supported by rammed, concrete or screw pile foundations, and they will face north in order to capture the optimum amount of sunlight.
Additional associated infrastructure that is likely to be required for the project includes the following:

- a small site office and storage facility, including security and associat facilities;
- security system;
- site fencing;
- car park; and
- a lay-down area for the temporary storage of materials during the construction activities.

The above key components may be subject to change throughout the BA process based on environmental constraints.

Proposed site alternatives for the PV power plant

In terms of the NEMA and the EIA Regulations, feasible alternatives are required to be considered during the EIA Process. All identified, feasible alternatives are required to be evaluated in terms of social, biophysical, economic and technical factors. The following alternatives will be considered for the project:

- Site Layout Alternatives (each 5MW PV plant will consider two different layout alternatives); and
- No-go Alternative.

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How does a PV plant work?

Typically, PV plants use semi-conductor materials to convert sunlight directly into electricity (Figure 1). The solar panels can be fixed or they can be installed to track the sun.

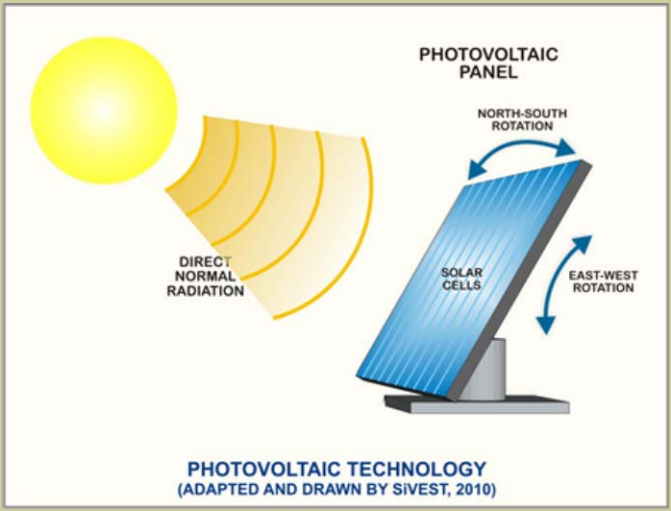


Figure 1: Typical Solar PV Panel

The solar panels are generally configured in banks of arrays or sub-arrays depending on the number of PV panels used and the size of the arrays (Figure 2). The rows of PV panels are spaced both to allow access to vehicles during maintenance and to ensure that one array or one sub-array does not cast a shadow over the one behind. The electricity is cabled to inverters, which convert DC power to AC and synchronised to the electricity grid. The output is connected through various switchgear, protection devices and meters to local users and the grid. The inverters, switchgear and other electrical equipment are standard items as used for a wide range of industrial applications. The other major operating component of the system is the inverter, which converts the DC power produced by the solar modules into AC power before being sent to the grid.

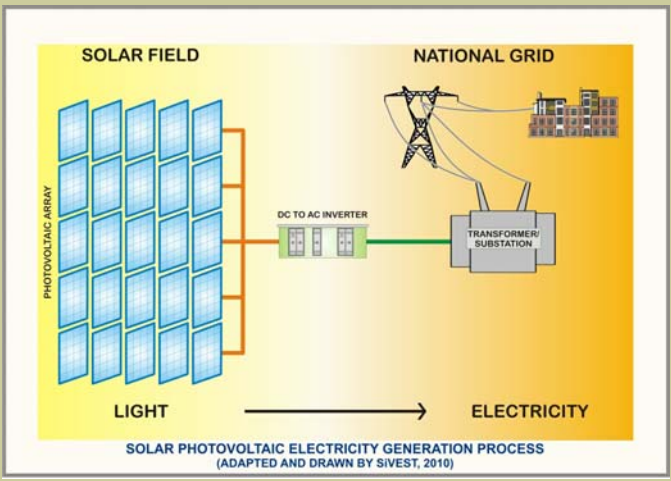


Figure 2: Conceptual illustration of the electricity generation process.

WHY USE SOLAR ENERGY?

The advantages of using renewable energy:

- it is one of the lowest cost producer of electricity from solar power;
- it has the capability of delivering Megawatts - scale grid power;
- there are limited macro-scale environmental impacts; and
- it is clean energy with limited waste production compared to other energy generators.

Location of the Proposed Development

The proposed project area falls within the boundaries of the Mangaung Metropolitan Municipality, 12km west of Bloemfontein, in the Free State Province. The proposed development is located on Portion 6 (Portion of Portion 5) on Farm Spes Bona 2355.
Refer to the locality map (Figure 3)

PROPOSED CONSTRUCTION SCHEDULE AND METHODOLOGY

Timeframe

The Environmental Authorisation process (Basic Assessment Process) is estimated to take approximately 4-5 months to complete. Depending on the issuing date of the Environmental Authorisation (EA), should it be granted by Department of Environmental Affairs (DEA), it is proposed that construction will commence in 2014. The construction period is estimated to be six (6) months in total. This includes the clearing of the servitude for both the substations (SSS1 and SSS2).

Rehabilitation of servitude after construction

A Construction Environmental Management Programme (CEMPr) will be established which will, amongst other requirements, detail the rehabilitation of any disturbed areas resulting from construction works. The appointed Environmental Control Officer (ECO) on site will ensure that all disturbed areas are stabilised as soon as possible after construction and the area is rehabilitated as close to the original condition as possible, as per the CEMPr. Rehabilitated areas that are susceptible to erosion due to their position in the landscape will be adequately protected by soil conservation measures.

Employment opportunities during construction

A contractor will be appointed for the construction of the proposed PV plants and associated infrastructure and should any local labour force be required, the appointed contractor will source the labour force through established structures, for example, the Local Municipality.

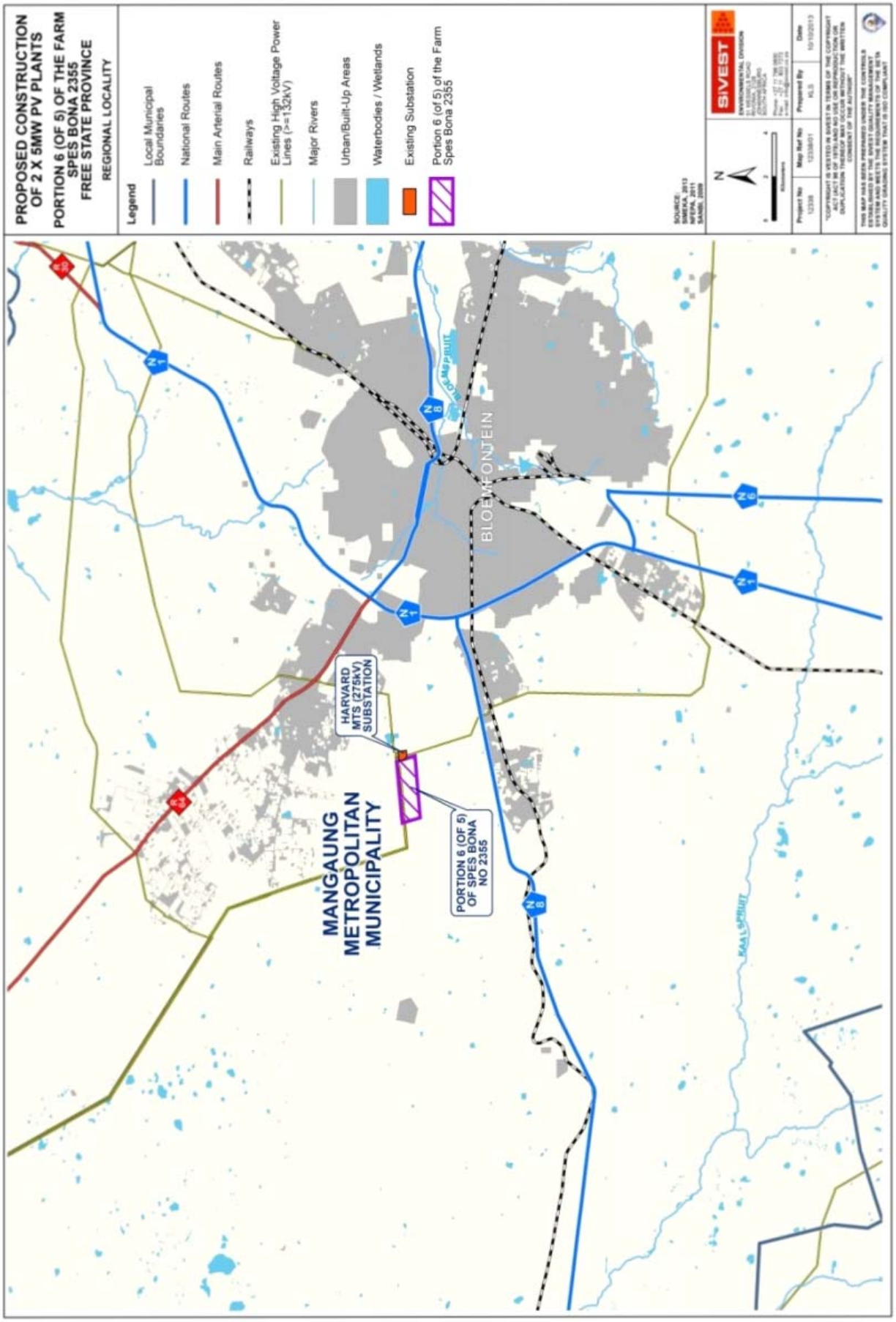
- Substation: Construction of the substation also requires highly skilled personnel and is mainly constructed by the utilisation of specialised machinery. It is anticipated that labour may be required for minimal, non-technical work like site clearance and security,
- Ancillary (additional) infrastructure: The construction/temporary erection of ancillary infrastructure may require the use of local labour and as mentioned above, construction workers will be sourced locally, as far as possible.

BASIC ASSESSMENT PROCESS

What is a Basic Assessment?

A BA is a process of collecting, organising, analysing, interpreting and communicating information that is relevant for the consideration of a particular application. BAs, as opposed to full Environmental Impact Assessments (EIAs), are undertaken where the impacts are less likely to have significant impacts on the receiving environment.

Figure 3: Locality map for the proposed development loaction.



BAs are used by planning authorities/developers to obtain an independent and objective view of the potential environmental (biophysical and social) impacts that could arise during the construction and operation of the proposed development. This information needs to provide the Competent Authority with a sound basis for their decision-making. Environmental management and mitigation measures are also identified through the BA process.

National Environmental Management Act (NEMA)

The BA process, as presented in Figure 3, will be conducted in accordance with the Environmental Impact Assessment (EIA) Regulations 2010 promulgated in terms of Sections 24 (5) read with section 44 of the National Environmental Management Act (No. 107 of 1998) (NEMA), as amended, in Government Notice (GN) No. R543.

The proposed project triggers activities in terms of Government Notice (GN) No. 544 (18 June 2010): Listing Notice 1

Notice Number	Listed Activities
Government Notice R544 (18 June 2010)	1
	10
	11
	18
	22
	23

Competent Authority

The Competent Authority, as described according to the EIA Regulations, for this proposed project is the National Department of Environmental Affairs (DEA).

The BA Process to be followed is illustrated in Figure 4 below:

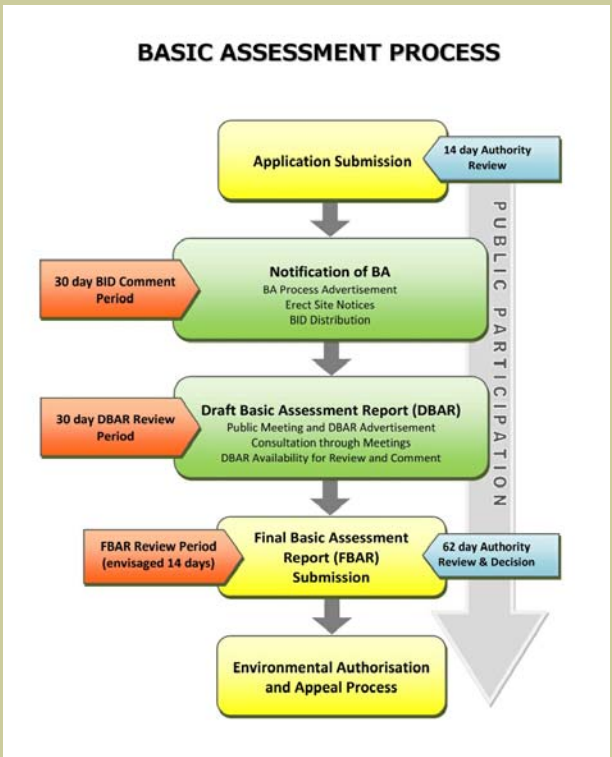


Figure 4: Basic Assessment Process Diagram

Environmental Issues to be investigated during the BA

Environmental issues to be investigated during the BA include the following;

Biodiversity (Flora and Fauna)

- Surface Water
- Agriculture and Soils
- Heritage
- Socio-Economic

THE PUBLIC PARTICIPATION PROCESS

The key objective of public participation during this BA will be to provide I&APs with sufficient and relevant information and to conduct a transparent consultation process on an on-going basis, in order to ensure effective participation throughout the BA process. As part of this public participation process you will also be provided with the opportunity to comment on the environmental findings as per the DBAR, which will be made available for public review and comment during the process.

You will receive personal notification by post, e-mail, facsimile and/or sms of all documents available for comment, and due dates for comment at every stage.

How to become involved

- Respond (by phone, fax, post or e-mail) to our invitation for your participation, which has been advertised in the printed media.
- Post, fax or e-mail the attached Registration and Comment Form to SiVEST.
- Contact us telephonically should you have a query, comment or require further project information.
- Review the DBAR within the review periods that will be stipulated in the advertisement.

By completing and submitting the accompanying BID Registration and Comment Form, you automatically register yourself as an I&AP for this proposed project, ensuring that your comments and/or concerns raised regarding the proposed project will be noted. The public participation consultants will respond to all comments and queries received during the course of the project.

Please be informed that all relevant public documents can be downloaded from the SiVEST's website (www.sivest.co.za/Downloads - select '*12338 Solar PV Plants in Bloemfontein*')

We look forward to your contributions.

COMMENTS AND QUERIES

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