

**Spes Bona Photovoltaic Farm nr Bloemfontein
FREE STATE**

**BACKGROUND INFORMATION DOCUMENT
FOR ENVIRONMENTAL AUTHORISATION PROCESS**

JANUARY 2014

Background

An Environmental Authorisation process has commenced in terms of R 543 of the National Environmental Management Act (1998) relating to the proposed establishment of a “hub” or “farm” of concentrated photovoltaic panels to be used in the generation of approximately between 20 and 86 MW of power. The applicant, a solar power production company, Simacell (Pty) Ltd, the development arm of Scatec Solar, wishes to introduce power to the national grid under the control of Eskom that would meet a portion of the demand in the region.

The application for authorisation requires the undertaking of an Environmental Impact Assessment (EIA) in terms of R543 of NEMA. The EIA will gauge the nature and significance of impacts identified through site assessment and public consultation. The EIA would also provide an indication of the level of impacts and options for mitigation or avoidance of such impacts.

This document highlights pertinent information for all Interested and Affected Parties (I&APs) associated with the assessment and provides further information on technical issues relating to the project.

Further to the above, the local authority and other role players in the power generation process, require environmental information in order to consider the proposed development and to provide further management input. Other relevant authorities include The Department of Energy and the Free State Department of Tourism, Environmental and Economic Affairs. (FS DTEEA).



Legal

Application is made under R543 of the National Environmental Management Act 1998 for the following activities;

Notice	Act. No	Description
R545.2010	1	The construction of facilities or infrastructure for the generation of electricity where the electricity output is 20 megawatts or more.
R545.2010	8	The construction of facilities or infrastructure for the transmission and distribution of electricity with a capacity of 275 kilovolts or more, outside an urban area or industrial complex.
R545.2010	15	Physical alteration of undeveloped vacant or derelict land for residential, retail, commercial, recreational, industrial or institutional use where the total area to be transformed is 20 hectares or more.....
R544.2010	10	The construction of facilities or infrastructure for the transmission and distribution of electricity- (i) Outside urban area or individual complexes with a capacity of more than 33 but less than 275kV;or (ii) Inside urban areas or industrial complexes with a capacity of 275kV or more
R544.2010	22	The construction of a road, outside urban areas— (i).with a reserve wider than 13,5 meters or, (ii).where no reserve exists where the road is wider than 8 metres, or (iii).for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Notice 545 of 2010.
R546.2010	14	The clearance of an area of 5 hectares or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation, except where such removal of vegetation is required for. (1) purposes of agriculture or afforestation inside areas identified in spatial instruments adopted by the competent authority for agriculture or afforestation purposes; (2) the undertaking of a process or activity included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the activity is regarded to be excluded from this list; (3) the undertaking of a linear activity falling below the thresholds in Notice 544 of 2010.

Other legislation that requires consideration includes:

1. The NEM Biodiversity Act (2006)
2. National Cultural Heritage Act (2009)
3. The Conservation of Agricultural Resources Act (1998)
4. The National Water Act (1999)

A single site has been identified for consideration. The site has been selected using a number of criteria including:

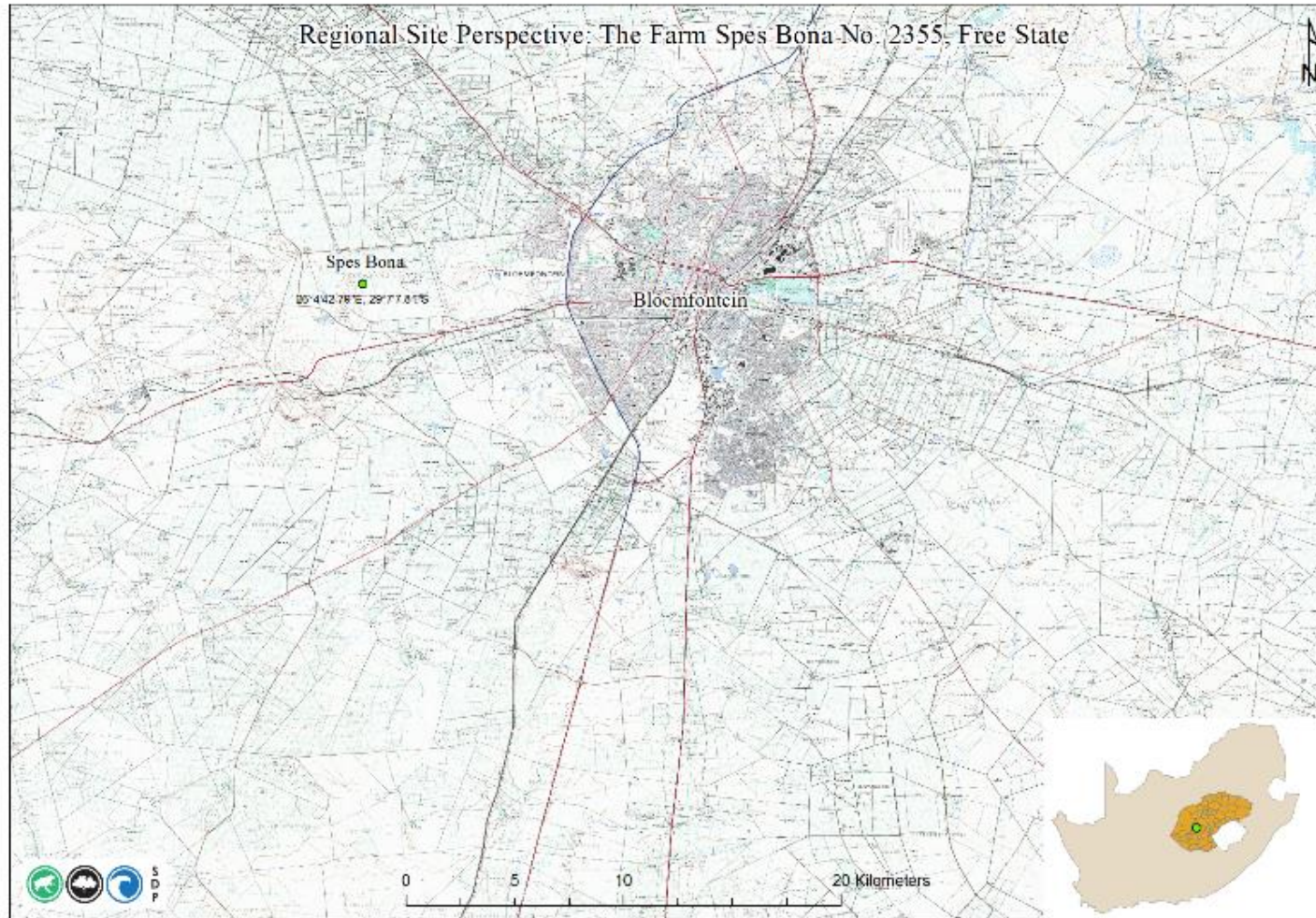
- ✓ Proximity to existing grid and the capacity of the grid.
- ✓ Topography.
- ✓ Insolation or amount of solar radiation reaching the site.
- ✓ Regional demand for power.... and
- ✓ Availability of the land

The site is located on Portions 1, 9 and 10 of The Farm Spes Bona No. 2355, Mangaung (Bloemfontein) Metropolitan Municipality, Free State, situated approximately 8 km East of Bloemfontein. The study site under consideration approximates 365 ha in area, of which approximately 230 ha will be identified as the development footprint.

The following information is provided as background to the site:



Proposed Development Site



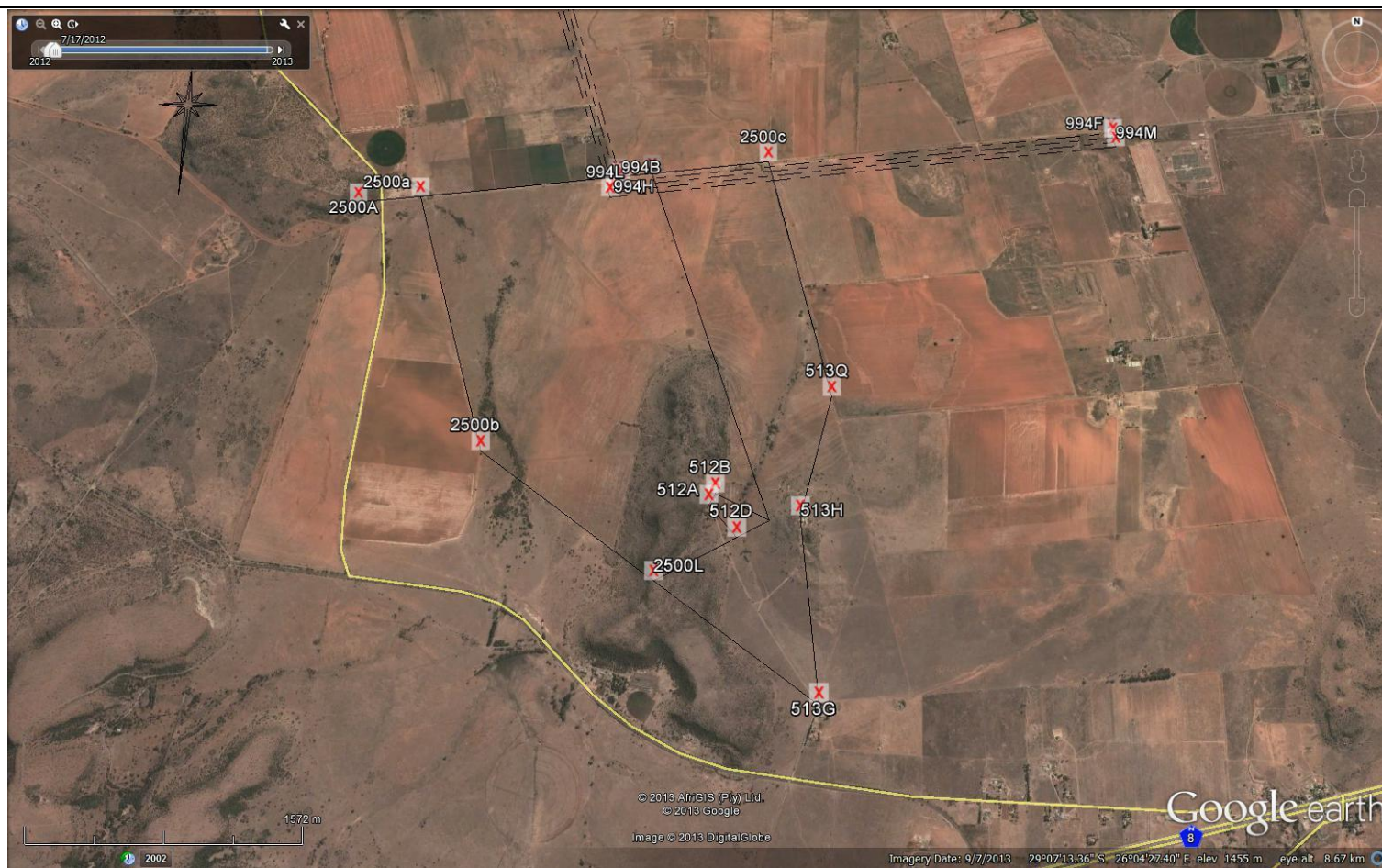


Figure 2 – Image indicating study area (Source Google Earth, 2010)

Nature of Site

The site is situated within the Free State Province and lies in close proximity to an existing Eskom powerline. The bio physical, geophysical and social aspects of the area can be described as follows.

Climate : Mean Annual Precipitation (MAP) = 500 mm approx. with a mean annual temperature of about 15°C. Rain is received primarily during the summer through convection thunderstorms.

Insolation : the region can be described as receiving good solar irradiance throughout the year. Long term data taken for the area indicates an insolation level greater than 2300kW/m²/annum (source :solar gis info.)

Topography : The topography is generally flat with a large central “koppie” within the property.

Geology : The broader geology of the region encompasses mudstone and sandstone of the Adelaide and Beaufort groups overlain by dolerite sills which form prominent “koppies”.

Ecology : The site falls within the Winburg Grassy Shrubland vegetation type. Shrubland areas are dominated by evergreen shrubs such as *Olea europaea*, *Euclea crispa*, *Gymnosporia buxifolia*, *Diospyros lycoides*, *Seasrsia (Rhus) burchellii*, *S. ciliata*, *S. erosa*, *Clutia pulchella* and *Grewia occidentalis*. Trees such as *Ziziphus mucronata* and *Celtis africana* are often associated with incised drainage lines.

Land Use : The current land use is “agriculture”. The land in general is utilised for grazing. A combination of cattle and game are kept on the farm.

Historical Issues : the sites are not noted to impinge on any Cultural Heritage resources.

Other : No wetland areas were identified on site, however two poorly defined annual watercourses were noted. A number of boreholes are positioned within the study area and are to be noted within the design of the proposed PV park.

See Fig. 3, below





Fig. 3 Typical View of study area

Applicant

The applicant is Simacell (Pty) Ltd, represented by Mr. J Borrill. Simacell is the development company of Scatec Solar. Scatec Solar have recently completed South Africa's first large scale 75MW solar park at Kalkbult near De Aar and are presently engaged in the construction of two other parks in the Eastern and Northern Cape. Scatec Solar also operate in 8 other countries. The applicant is a BEE company and is involved in a number of community based social investment initiatives as a result of its solar power development activities, as well as operating under ISO 14001 / ISO 9001 and a triple ISO certified solar registration. For further information please log on to www.scatecsolar.com

Environmental Assessment Practitioner

Sustainable Development Projects cc has been appointed by the developer as the independent environmental consultant to undertake the environmental authorization process. For further information on Sustainable Development Projects cc please log on to www.ecocoast.co.za

The Development

The proposed development entails the establishment of “panels” or “modules” of crystalline “cells” that are situated on raised aluminium or steel frames. Such modules are approximately 3.0m in width, with a height of 2.2m (fig 4a). The modules are moved by mechanical “tracking systems”, which are hydraulically operated and allow the modules to follow the movement of the sun and ensure improved irradiance on the crystalline “cells” within the modules. Such tracking systems ensure improved power production. (fig 4 b).

The frames are founded into the ground upon steel footings or earth screws. Electrical cabling is positioned below ground, with switch boxes established on the frames. Inverters, converting DC current to AC current are positioned intermittently within the park, while a “step up” transformer facility allows for the provision of power from the solar park to the grid to take place, at a level compatible with the prevailing supply

The module structures are effectively temporary in nature and may be relocated with ease. Other activities may be undertaken in conjunction with such structures, including grazing of small livestock, thus enhancing the farming operation.

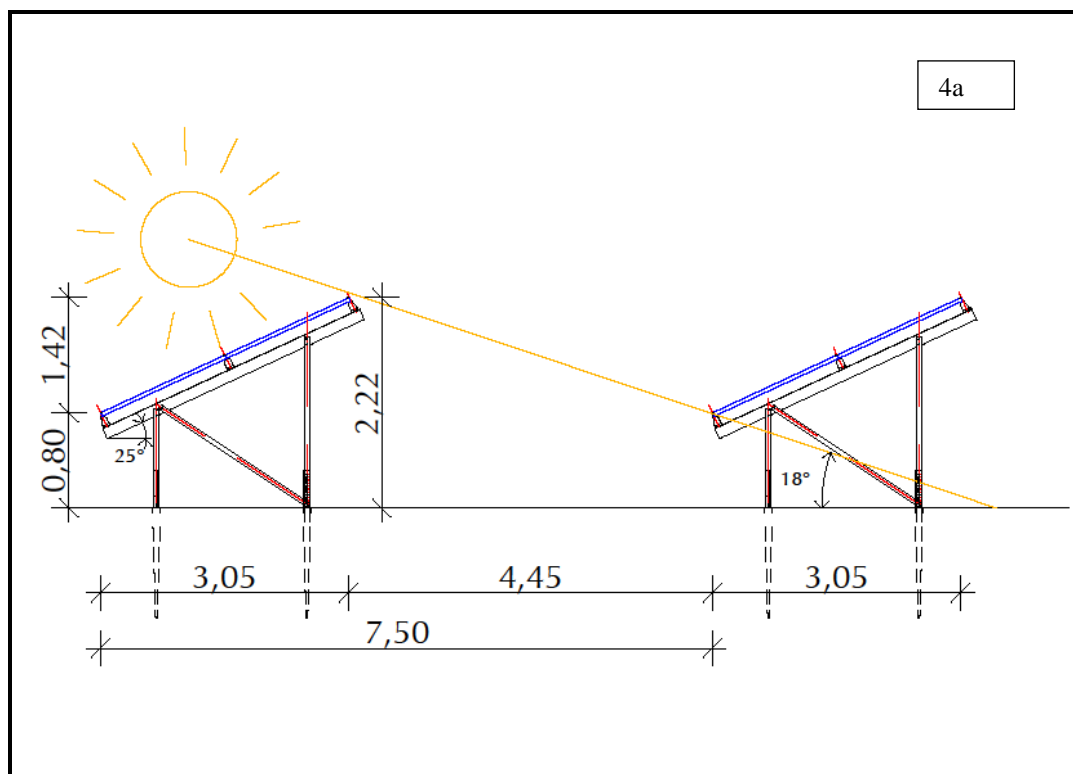


Fig. 4a Dimensions of modules proposed on site



Fig. 4 b Image of tracking system and modules

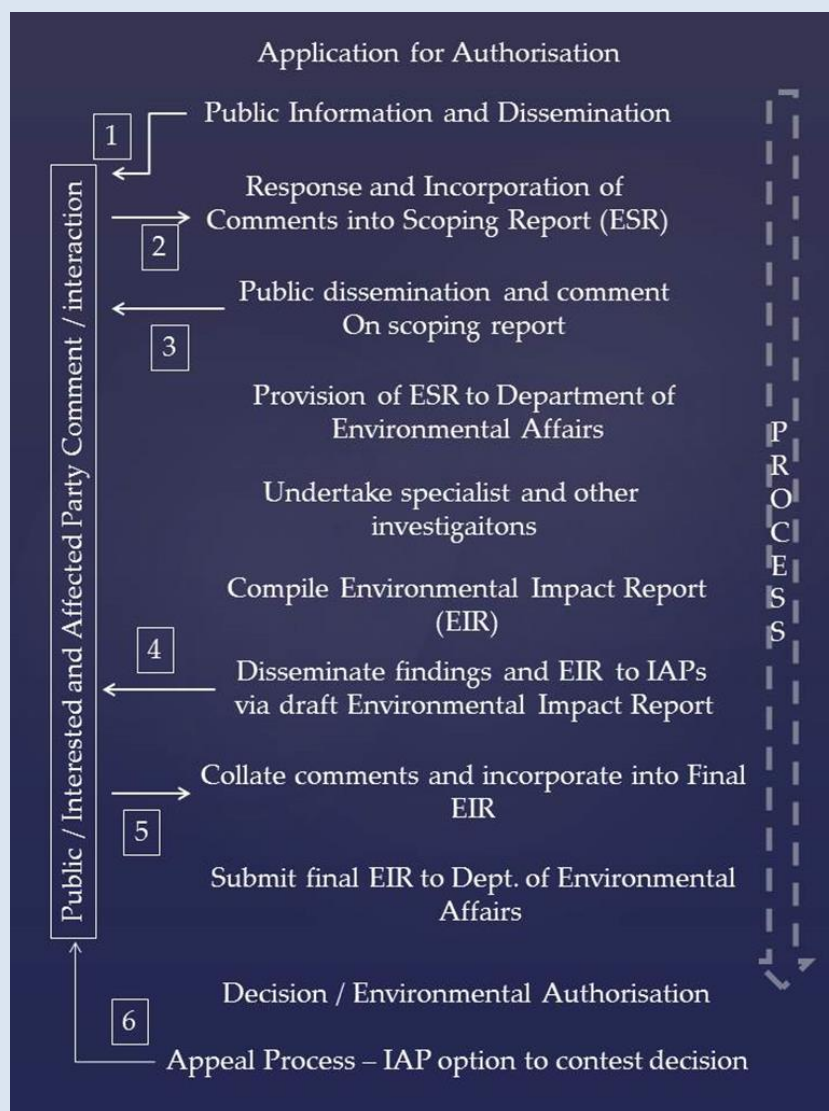


Fig. 4 c Aerial image of Kalkbult solar park, Northern Cape

The Role of Interested and Affected Parties

Interested and Affected Parties are invited to comment on the above proposal, and all such comment will be included in the basic assessment report that is submitted to the National Department of Environmental Affairs for evaluation.

No public meeting is envisaged due to the low settlement density within the region, however, direct engagement with individuals seeking further clarity on the matter will be undertaken. All written submissions on the matter will be recorded in the BAR. The environmental assessment process entails the following:



Please forward all comments or for further information, please contact the address below;

Sustainable Development Projects cc

P O Box 1016, Ballito, 4420 Tel 032 – 946 0685 Fax 032-9460784 e mail :

simon@ecocoast.co.za

RESPONSE FORM

Spes Bona Photo Voltaic Farm, Free State

Ihave been informed of the proposed development on the above mentioned property. My response and comments on the proposed development are contained below.

Details:

Postal address.....

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Tel. number:

Fax. number:

E-mail:

1. Are you a resident of adjacent properties? Y N

If no, then please specify

Issues that are of concern to me emanating from this development are:

Issue and Description of Issue		Level of significance / concern		
		Low	Medium	High
Ecological	Issues relating to plant and animal life, destruction of habitat,, runoff into water courses, etc.			
Traffic	Issues relating to possible increase in heavy traffic in the area, degrading of roads, etc.			
Other (please describe)				

Other (please describe)				
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The following opportunities for mitigation are proposed

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Additional Comments

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Please attach any further correspondence or submission you may wish to make on this matter to this response form

**Please return to P O Box 1016, Ballito, 4420 or fax to 032-946 0784
E-mail simon@ecocoast.co.za /**

