

VAN ZYL



ENVIRONMENTAL
CONSULTANTS cc
2009/073037/23

**ENVIRONMENTAL IMPACT ASSESSMENT PROCESS
BACKGROUND INFORMATION DOCUMENT 21/2011 EN 3/2012**

FOR: THE DEVELOPMENT OF ONE OR TWO PHOTOVOLTAIC(PV) POWER STATIONS WITH A GENERATION CAPACITY OF UP TO 15 MW_p EACH AT THE FARM KWARTELSPAN, DOUGLAS, NORTHERN CAPE

LOCATION: REMAINING EXTENT OF THE FARM KWARTELSPAN NO. 25
PORTION 1 OF THE FARM KWARTELSPAN NO. 25

DATE: MARCH 2012

COMPILED BY: VAN ZYL ENVIRONMENTAL CONSULTANTS

EAP: Irmé van Zyl
Mobile Phone: +2772 222 6194
Telephone: +2754 338 0722
Facsimile: +2786 624 0306
Email: ibvanzyl@telkomsa.net

Address: P.O. Box 567
UPINGTON
8800
South Africa

Appointed by: SUNTRACE AFRICA (Pty) Ltd
Contact Person: Mr. A. Chaudhry
Mobile Phone: 073 145 1949
Telephone: 011-883-9696 / 8990
Facsimile: 011-883-8818
Email: Aleem.chaudhry@suntrace.co.za

Address: P.O. Box 1559
Gallo Manor
2052
Johannesburg
South Africa

1. Project Applicant

Suntrace Africa (Pty) Ltd.

2. Project Titles

Kwartelspan PV 1 & 2: The Development of PV Power Stations with a Generation Capacity of up to 15 MW each on the Farm Kwartelspan, Douglas, Northern Cape.

3. Purpose of this Document

This document aims to provide the reader with information regarding the proposed developments, as well as the environmental impact assessments (EIA) and public participation processes that are being conducted. The document also aims to equip the reader to participate in the public participation processes by requesting and receiving information and raising concerns and issues with regard to the proposed developments.

4. Brief Project Description

The development of one or two 15 MW PV power stations of fixed or tracking systems is proposed to be constructed on the farm Kwartelspan within a radius of approximately 1 500 m from the existing Eskom Greefspan Substation. The

developments will have a footprint of less than 20 ha each and associated infrastructure will include fencing, guardrooms, toilets, showers, washbasins, security systems, lampposts, lightning conductor poles, storage facilities for spare parts, and workshops. Kwartelspan PV 2 will most probably also include a new substation (132 KV/22 KV) near the ESKOM 132 KV transmission line. A 22 KV transmission line, with a maximum length of approximately 1 400 meter, would be built from the power stations to the substation(s).

5. Project Location and Surrounding Land Use

The developments are proposed on the remaining extent of the farm Kwartelspan no. 25. The main portion of the transmission line(s) and possible substation are planned on the farm De Rust, Portion 1 of the farm Kwartelspan no. 25. These farms are situated approximately 60 km from Douglas on the R357, close to the Eskom Greefspan Substation. (Coordinates: 29°23'28.3" S 23°18'41.35" E)

The area has a rural, agricultural character and land is mostly used for sheep farming. Several mining activities are also practiced in the area. Another PV power station, with a generation capacity of 10 MW, has been approved by the Department of Environmental Affairs as well as the National Energy Regulator of South Africa (NERSA) for development to the south of the substation.

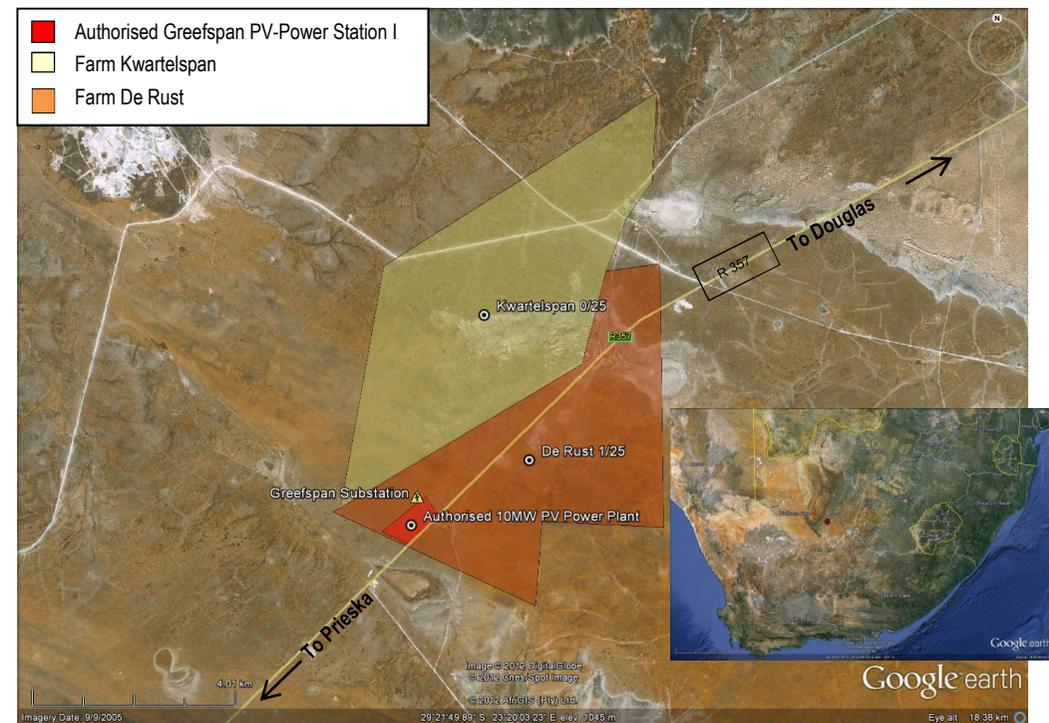


Figure 1: Location of the farms on which the applications are being lodged as well as the authorised PV power station at Eskom Greefspan Substation (Google Earth, 2012)

6. Need and Desirability of the Activities

The proposed developments will provide clean energy from an unlimited and sustainable resource, thereby reducing fossil fuel dependence and CO₂ emissions, as well as the associated global warming. These types of developments cause minimal environmental impact and produces minimal waste.

The local economy will be stimulated and job opportunities will be created during the construction, operational and maintenance phases of the proposed developments, with the security sector as the main contributor.

Local resources will be utilised from the planning to the construction and operational and maintenance phases. The technology is safe and will not affect the quality of life of local inhabitants.

7. Alternative Sites

No alternative sites have been identified, because the PV power stations must be located as close to the Eskom Greefspan Substation as possible in order to facilitate effective energy transfer. The suitability of the proposed site, where the developments are proposed, will be thoroughly investigated during the EIA processes to establish its environmental suitability for PV power developments.

8. Solar Energy and Technology

Solar energy can be utilised for the generation of heat and electricity. Although the sun is an ever-present energy source, the potential for utilising its energy for electricity generation varies from one location to another, mostly due to meteorological (weather-related) factors. The Eskom Greefspan Substation is situated in an ideal location for receiving additional electricity generated by means of solar technology (Figure 2).

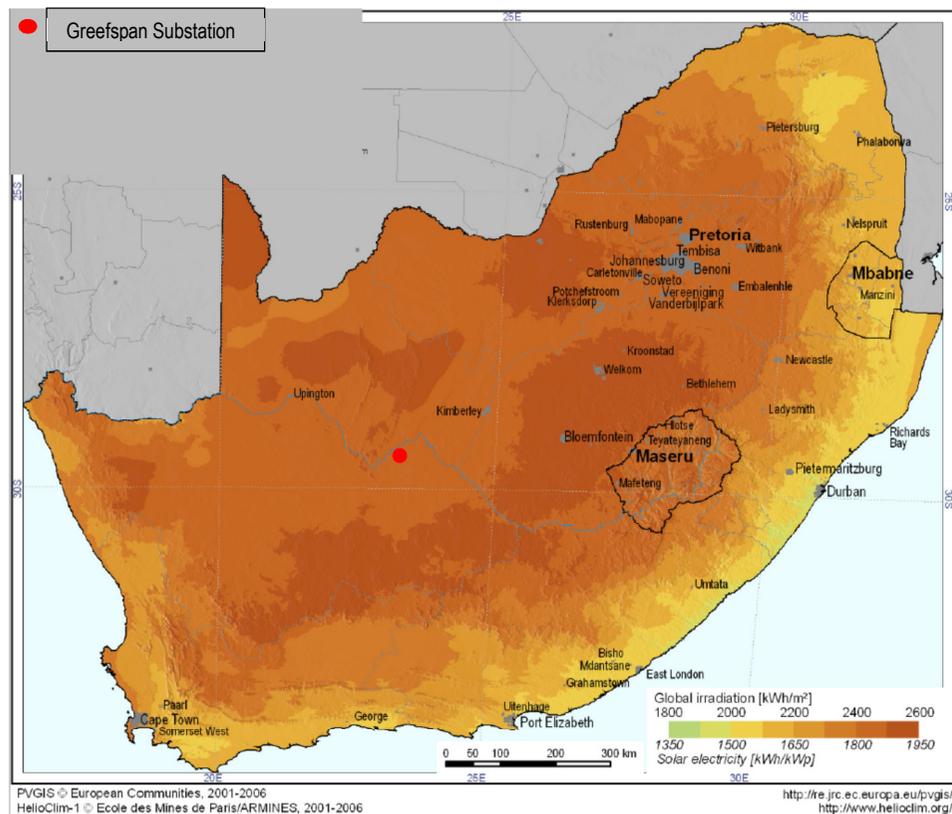


Figure 2: Solar electricity potential in South Africa (Source: PVGIS)

Two main types of solar technology are used for electricity generation, namely Concentrated Solar Power (CSP) and Photovoltaic (PV) technology, more commonly known as solar panels. PV technology is widely used for supplying

electricity to single households, but can also be used to generate higher volumes of electricity for distribution by an electricity supplier like Eskom. It is also used to supply electricity for military uses, as well as for isolated units like boats, motor vehicles, chargers, lampposts and billboards. PV technology has lower infrastructure requirements than CSP technology but delivers lower volumes of electricity. It is therefore considered to be suitable for the area in which the Eskom Greefspan Substation is situated, as this area has relatively low electricity needs which could partly be supplied for by means of PV technology.

The most visible part of the PV power station will be the PV modules, or solar panels, and their associated structures. Two types of structures are being considered, namely fixed structures (Photograph 1 and 2), which are fixed in one position, and tracker systems (Photographs 3 and 4), which move along with the movement of the sun in order to receive as much energy as possible throughout the day and, with some systems, even throughout the year.



Photo 1 and 2: Fixed Structures (Bron: <http://www.energy.siemens.com/hq/en/power-generation/renewables/solar-power/photovoltaic-power-plants.htm>)



Photo 3 and 4: Tracker Systems (Bron: http://en.wikipedia.org/wiki/Photovoltaic_system)

(Bron: <http://www.atlasolar.com/>)

The PV modules are made of thin-film, monocrystalline or polycrystalline silicon and are mounted on structures consisting of galvanised steel, stainless steel and aluminium, with a concrete base.

The energy flow in a PV power station is illustrated in Figure 3.

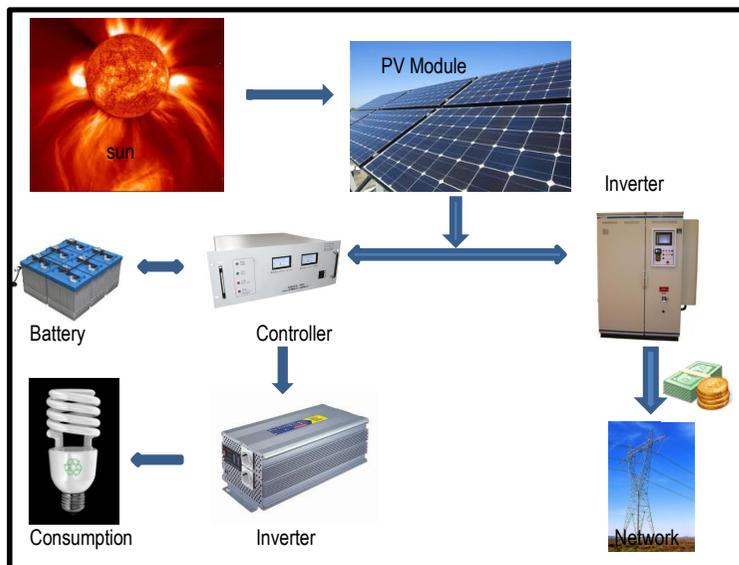


Figure 3: Energy flow in a PV power station

Similar power plants, such as Solarpark Leipziger Land in Espenhain, Germany (Photographs 5 and 6) have been implemented in many parts of the world. The plant in Espenhain consists of 33 500 panels and generates approximately 4 750 MWh per year.



Photos 5 and 6: 5 MWp Solarpark Leipziger Land – Espenhain, Germany (Source: Geosol)

9. Applicable Legislation & Applications to be Submitted

Government Notices R 543, R 544 and R 546, published in Government Gazette No 33306 (dated 18 June 2010) in terms of Chapter 5 of the National Environmental Management Act, Act No 107 of 1998 (as amended) are applicable. The thresholds defined in Regulations 544 and 546 will be crossed by the developments and therefore an application for environmental authorisation for Kwartelspan PV 1 has been submitted to the National Department of Environmental Affairs (DEA) and accepted. The application for Kwartelspan PV 2 is being prepared for submission to DEA. Basic assessment reports will therefore be compiled in due course. The listed activities that are most likely to be applicable to the proposed developments include, but are not limited to:

- Regulation 544, 1 (i); 10 (i); 11 (xi); 18(i); 22(ii); 23 (ii); and 47(ii)
- Regulation 546, Activity 14(a)(i)

Suntrace Africa will also apply to the Department of Water Affairs for a Water Use Licence in terms of the National Water Act 1998 (Act No 36 of 1998).

10. Specialist Studies

The following specialist studies will be conducted on the study area:

- A heritage impact assessment (Phase 1)
- A palaeontological exemption letter
- An ecological study
- A study on avifauna (birds) and Chiroptera (bats)
- A visual impact assessment
- An agricultural impact assessment

11. The Environmental Impact Assessment Process

The environmental impact assessment (EIA) process is conducted by an independent environmental assessment practitioner (EAP) in order to identify and manage the possible environmental impacts of a development. It ensures that environmental considerations form part of the planning of the development and aids the competent authority in deciding whether a development should be authorised or not.

The public participation process (PPP) forms an important part of the EIA process, as it ensures that the concerns of all the Interested and Affected Parties (I&APs) are taken into consideration.

After an application for environmental authorisation through basic assessment has been accepted by the competent authority, potential I&APs are identified and notified of the proposed development and the EIA process. I&APs are requested to register, and to raise their issues and concerns about the proposed development. Public invitations for involvement in the EIA are also issued by means of media advertisements and public notices in order to ensure that all potential I&APs are notified. All I&APs who respond to the notices in writing are registered on a database and their comments and concerns recorded for inclusion in the basic assessment report.

The basic assessment report (BAR), which is compiled shortly after the initial public notification, examines possible alternatives with regard to the proposed development and identifies environmental impacts that could possibly result from each alternative. These impacts are then assessed and mitigation measures proposed, and the most favourable option is recommended. An environmental management programme (EMP) is compiled with the BAR and stipulates the measures that are to be taken during the planning, construction, operational and closure phases of the development to ensure that positive environmental impacts are enhanced and negative impacts mitigated.

When the BAR has been compiled, it will be made available in draft format for public perusal. Registered I&APs will be informed and invited to comment. Comments received during this phase will be included in the final BAR, which will be made available for comment again. When the commenting period on the final BAR lapses, it will be submitted to the DEA, together with all comments received.

Each invitation to comment will be subject to a deadline, by which time the EAP will assume that all comments have been received. These deadlines must be adhered to in order for the process to flow smoothly.

All I&APs are hereby invited to get involved in the EIA process by responding to media advertisements or public notices, attending public meetings, if any are held, and reviewing and commenting on the draft and final BARs within the commenting period that will be provided. Any queries, comments or requests for further information can be directed telephonically or in writing to the EAP (contact information on p. 1).