

NOVEMBER 2011

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

PROPOSED

**GRAAFWATER PHOTOVOLTAIC
SOLAR ENERGY FACILITY**

WESTERN CAPE PROVINCE

BACKGROUND INFORMATION DOCUMENT



INCA Graafwater Solar (Pty) Ltd (a subsidiary of INCA Energy) is proposing to establish a commercial photovoltaic solar energy facility as well as associated infrastructure on a site located approximately 4 km north of Graafwater in the Western Cape. Based on a pre-feasibility analysis and site identification processes undertaken by INCA Graafwater Solar, a favourable area has been identified for consideration and evaluation through an Environmental Impact Assessment (EIA).

The project is proposed on portions of the following farms: Ratelfontein 75 Portion 1 and Portion 32, Graafwater Extension 80 Remainder, Bruins Kop 82 Portion 1, Graafwater Extension 81 Remainder and The Flats 83 Portion 1. The site proposed for the facility falls within the Cederberg Local Municipality. A broader area of approximately 1300 ha is being considered within which the facility is to be constructed. The nature and extent of this 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 project.
- » Details of how you can become involved in the process, receive information, or raise issues, which may concern and/or interest you.

OVERVIEW OF THE PROPOSED PROJECT

By undertaking 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 to the electricity grid, accessibility of the study site, and local site topography, an ideal site has been identified by INCA Graafwater for the establishment of the proposed solar energy facility.

The solar energy facility is proposed to accommodate an array of photovoltaic (PV) panels with a generating capacity of up to 25 MW. Other infrastructure associated with the facility will include:

- » An on-site generator transformer and a small substation to facilitate the connection between the renewable energy facility and the Eskom electricity grid;
- » Foundations to support the PV panels;
- » Cabling between the project components, to be laid underground where practical;
- » A loop-in, loop-out connection on the existing 66kV Graafwater-Ratel feeder line; and
- » Internal access roads; and
- » Workshop area for maintenance and storage.

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, and 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 TECHNOLOGIES PROPOSED FOR THE PROJECT

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.

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. 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 photovoltaic solar facility component of the development is anticipated to accommodate up to 25 MW of generating capacity.

Solar PV facilities comprise of the following components:

The Photovoltaic Cell

A photovoltaic (PV) cell is made of silicone which acts as a semiconductor used to produce the photovoltaic effect. Individual PV cells are linked and placed behind a protective glass sheet to form a photovoltaic panel.

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 fixed to a support structure 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

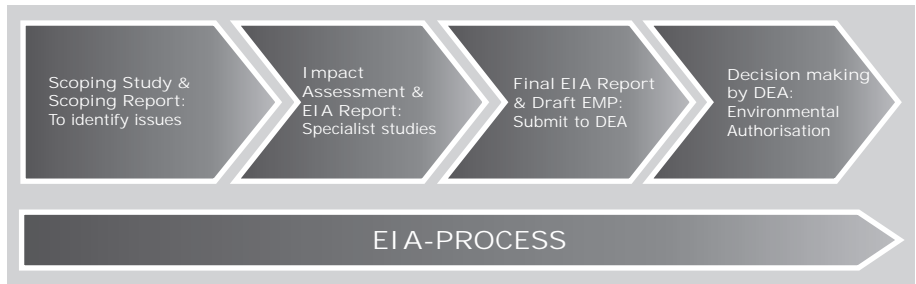
ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

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), INCA Graafwater Solar (Pty) Ltd requires authorisation from the National Department of Environmental Affairs (DEA) (in consultation with the Western Cape Department of Environmental Affairs and Development Planning (DEA&DP)) for the construction and operation of the proposed solar energy facility. In terms of sections 24 and 24D of NEMA, as read with the EIA Regulations of GN R543 (Regulations 26-35) and R545, a Scoping Phase and an EIA are required to be undertaken for this proposed project. In order to obtain authorisation, comprehensive, independent environmental studies must be undertaken in accordance with the EIA Regulations. This project has been registered with the National DEA under application reference number 12/12/20/2560.

An EIA 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 applicant to be forewarned of potential environmental issues, and allows for resolution of the issue(s) reported on in the EIA report as well as dialogue with I&APs.

INCA Graafwater Solar (Pty) Ltd has appointed Savannah Environmental, as the independent environmental consultants, to undertake the required Scoping Phase and Environmental Impact Assessment 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 Plan (EMP). As part of these environmental studies, I&APs will be actively involved through the public involvement process also being undertaken by Savannah Environmental.

The phases of an EIA are:



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

A number of potential environmental impacts, both positive and negative, associated with the proposed Solar Energy Facility have been identified. These include the following:

Biophysical Studies

Impacts on ecology, fauna and flora:
The construction of the facility and the associated disturbance of vegetation may result in impacts on ecology.

Impacts on agricultural potential:
Impacts on agricultural areas and potential, and land capability.

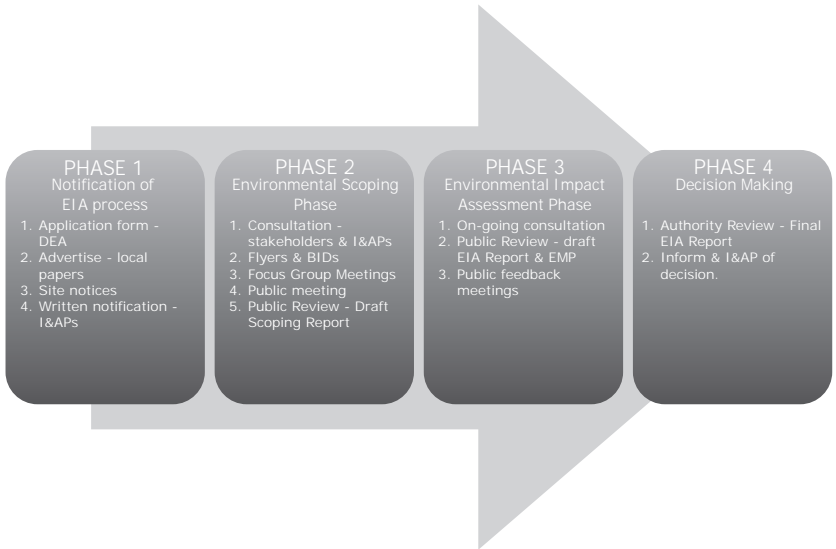
Social Studies

Visual quality and aesthetics:
The solar energy facility have the potential to have a visual impact on the surrounding area.

Impacts on heritage sites and fossils / paleontology:
Disturbance to or destruction of heritage sites and fossils/paleontology may result during the construction of the facility.

Impacts on the social environment:
The construction and operation of the facility may result in limited job opportunities and could impact on local land use.

an I&AP for this project, and are ensured that your comments, concerns or queries raised regarding the project will be noted.



Direct all comments, queries or responses to:

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To view project documentation, visit

www.savannahSA.com

INCA Energy Site Graafwater

Locality Map

Legend

- National Road
- Regional Road
- Secondary Road
- Railway Line
- Perennial River
- Non-perennial River
- Power Line
- Distribution Substation
- Transmission Substation

