



CEF (SOC) LTD



DRAFT SCOPING REPORT



ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED 1GW UPINGTON SOLAR PARK, //KHARA HAIS MUNICIPALITY, NORTHERN CAPE PROVINCE

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Lidwala
Specialist Solutions

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EXECUTIVE SUMMARY

Project Background

The Government of South Africa (Department of Energy, DoE), through its energy policy initiatives such as the Integrated Resource Plans (IRP), embarked on a programme to include renewable energy sources in its energy supply mix. DoE want to stimulate the use of solar energy as a renewable energy source to generate and supply electricity to the National Grid. In addition DOE is planning in concentrating the generation facilities in a number of Solar Parks within the Solar Corridor in the Northern Cape Province.(NC) The NC is known to have very high Direct Normal Irradiation (DNI) and it is high and sufficient enough to generate solar power that warrants investment on a large scale. DoE has designated CEF (SOC) Ltd. to undertake the Technical Feasibility and Environmental Impact Assessment studies on the proposed Upington site in the NC for the Solar Park development with a nominal generation capacity of 1GW. Lidwala Consulting Engineers (SA) (Pty) Ltd was appointed by CEF (SOC) as the independent Environmental Assessment Practitioner (EAP) to undertake both the Scoping and EIA phase for the proposed Solar Park.

It is envisaged that the proposed Solar Park will make use of different Solar Technologies such as *Concentrated Solar Power (CSP)* which include; Parabolic Trough (PT) and Central Receiver (CR) and *Photovoltaic (PV)*; which include fixed and tracking crystalline PV, fixed thin film PV and Concentrated PV (CPV) with a total generating capacity of 1GW.

The proposed 1GW Upington Solar Park development consists of the following infrastructure development but not limited to: Solar Park bulk infrastructure (e.g power blocks and turbines, collector substations and interconnection substations, power lines, auxiliary fossil fuel boilers, salt or direct stream storage vessels); solar panels of different solar technologies; workshop area for maintenance and storage of equipment; building infrastructure; pipelines for water supply; stormwater; drainage and sewage; telecommunications; subsoil stockpile area; topsoil stockpile area; water treatment works (water storage and evaporation ponds) and access/haul road network.

The proposed 1 GW Upington Solar Park will be located about 10 km west of Upington on the remaining extent of Farm Klipkraal 451, which falls within the //Khara Hais Local Municipality in the NC. . The portion of the farm where the Solar Park development is proposed covers an area of approximately 5011 hectares of municipal land. The actual footprint for the Solar Park (will be confirmed during the EIA Phase) will be smaller than the total size of the site (5011 ha) due to various layout options selected during feasibility and the Geotechnical study findings.

The Environmental Impact Assessment (EIA) process can be divided into two main phases, namely the Scoping and Impact Assessment phase. This report documents the tasks which have been undertaken as part of the Scoping phase of the EIA. These tasks include the public participation process and the documented issues which were identified.

Key tasks undertaken within the scoping phase included:

- Identification of stakeholders or I&APs.
- Consultation with relevant decision-making and regulating authorities (at National, Provincial and Local levels).
- Submission of application form in terms of Regulation 12 and 26 of Government Notice No R 543 of 2010.
- Notification, advertisements and distribution of Background Information Documents.
- Undertaking a public involvement process throughout the Scoping process in accordance with Chapter 6 of Government Notice No R 543 of 2010 to identify issues and concerns associated with the proposed project.
- Preparation of a Comments and Response Report to be included in the Final Scoping Report detailing key issues raised by Interested and Affected Parties (I&APs) as part of the EIA process (in accordance with Regulation 57 of Government Notice No R 543 of 2010)
- Undertaking of independent specialist studies in accordance with Regulation 32 of Government Notice No R543 of 2010.
- Preparation of a Draft Scoping Report and Plan of Study for EIA in accordance with Regulation 28 of Government Notice No 543 of 2010.
- Ongoing consultation and engagement.

More detail on the above is available in **Chapter 3**.

The Draft Scoping Report has been made available for public review and comment from **03 July to 12 August 2014**. During the review period a public participation process (PPP) will be undertaken, allowing (I&APs) to engage with the project proponents and independent environmental consultants. The PPP will consist of public meetings/open days as well as one-on-one interactions where required. Issues raised by I&APs during the public participation process will be documented and will be included in the Final Scoping Report.

The relevant authorities required to review the proposed project and provide an Environmental Authorisation were consulted from the outset of this study, and have been engaged throughout the project process. The National Department of Environmental Affairs (DEA), is the competent authority for this Project. The Northern Cape Department

of Environment and Nature Conservation (DENC) and the //Khara Hais Local Municipality are key commenting authorities. For a comprehensive list see Chapter 3.

The Scoping Phase of an EIA serves to define the scope of the detailed assessment of the potential impacts of a proposed project. The Environmental Scoping Phase was undertaken in accordance with the requirements of sections 24 and 24D of the National Environmental Management Act (NEMA) (Act 108 of 1998), as read with Government Notices R 543 of the 2010 EIA Regulations. The objectives of the Scoping Phase are to:

- Ensure that the process is open and transparent and involves the Authorities, proponent and stakeholders;
- Identify the important characteristics of the affected environment;
- Ensure that feasible alternatives are identified and selected for further assessment;
- Assess and determine possible impacts of the proposed project on the biophysical and socio-economic environment and associated mitigation measures; and
- Ensure compliance with the relevant legislation.

Evaluation of the Proposed Project

Issues identified through this scoping study as being potentially associated with the proposed 1GW Upington Solar Park and associated infrastructure includes:

- Impacts on biodiversity and ecological processes, including habitat alteration and impacts to wildlife;
- Impacts on soil and land-use;
- Impacts on heritage resources;
- Impacts on avifauna (mortality from collisions with infrastructure components including power lines);
- Impacts on surface water;
- Visual impacts; and
- Positive and negative impacts on the social environment.

Based on the scoping studies undertaken to date no environmental fatal flaws were identified that would prohibit the project from continuing at this stage of the process. Sensitive areas already identified through the scoping study include (**Fig. 1**):

- *A small number of small rock pans that forms the main sensitivity feature of the site (very high sensitivity).*
- *The dunes on the eastern side of the site (considered to be of moderate to high sensitivity due to their greater susceptibility to disturbance-related impacts).*
- *Presence of a relatively high density of protected tree species across the site.*

- Areas along ephemeral drainage lines (single small drainage line running into one of the small pans can be confirmed at present considered to be of high sensitivity).

These sensitive areas will be further investigated and assessed through detailed specialist studies (including field surveys) during the EIA phase of the process (refer to **Chapter 7** for more details).

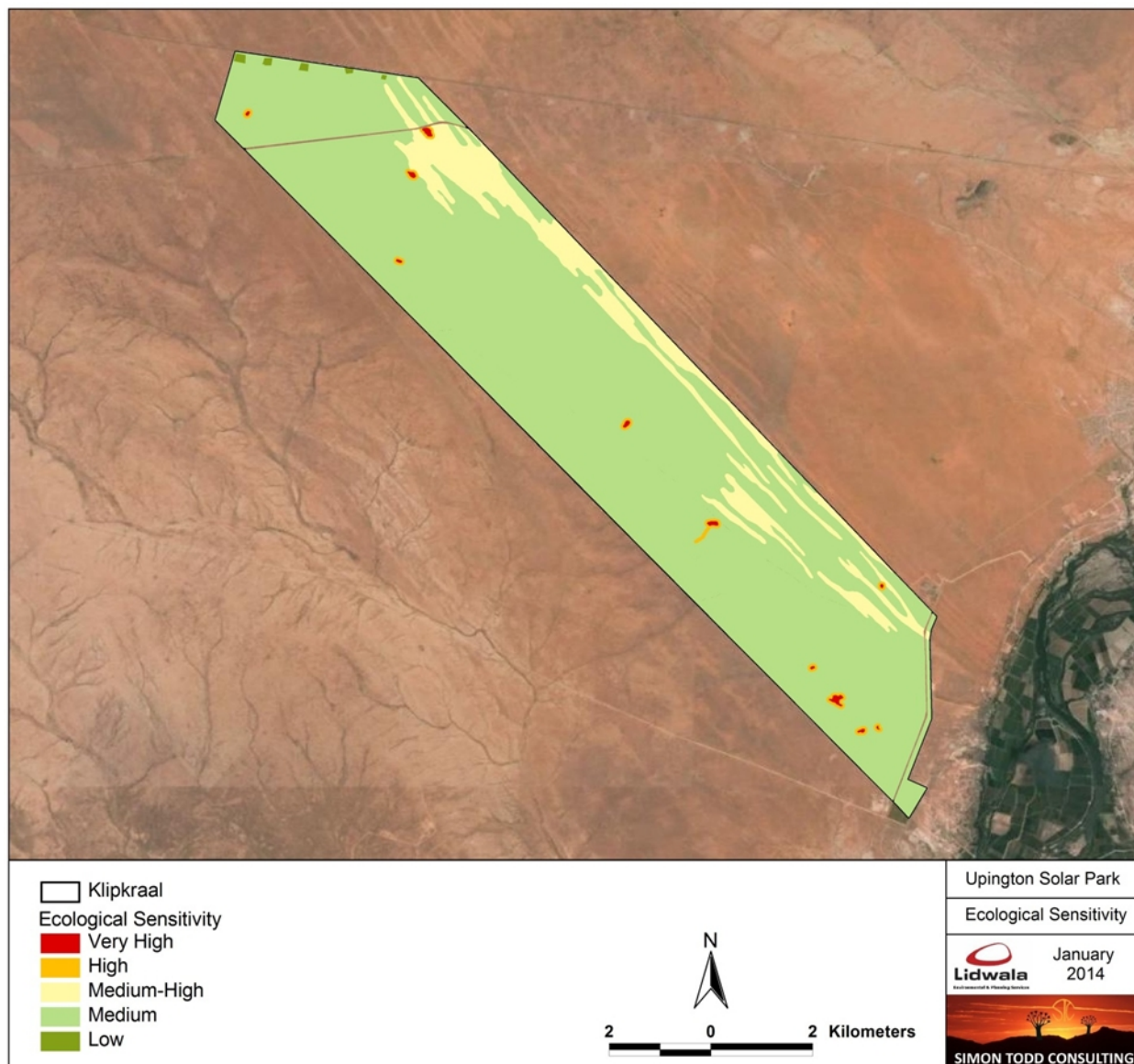


Figure 1 Draft ecological sensitivity map of the proposed Upington Solar Park site. The main sensitive feature of the site is the pans which are scattered across the site, but comprise a small overall proportion of the study area.

The potentially significant issues related to the **construction** of the Upington Solar Park and associated infrastructure includes:

- Impacts on vegetation, protected plant species from activities such as site clearance and levelling for installation of Solar Park components and associated infrastructure.
- Soil erosion and associated degradation of ecosystems due to amount of disturbance created during construction activities such as clearance and levelling for the installation of Solar Park components and associated infrastructure for example internal access roads that will leave the site vulnerable to soil erosion, especially in the areas of dunes.
- Direct Faunal impacts due to noise, pollution, disturbance and human presence will be detrimental to fauna.
- Impacts on heritage and paleontological resources through construction activities.
- Impacts on the surface water through the clearance of large areas within the proposed Solar Park site for construction activities and the storage of hazardous substances to be used during construction.
- Visual impacts on the landscape related to the construction site and possible scarring of the landscape due clearance of vegetation.
- Noise, traffic and dust resulting from construction activities such as movement of vehicles and heavy machinery.
- Social impacts, both positive and negative (job creation and business opportunities, influx of construction workers in the area).

The potentially significant issues related to the **operation** of the Upington Solar Park and associated infrastructure includes:

- Change of land use from agriculture to Solar Power Generation.
- Direct impact on the site surface water for example blocked surface water management systems as result of build-up of dust and silt, surface water run off to wetlands, pans and drainage lines can be cut off as a result of the diversion of site storm water and there is also a possibility of seasonal flooding of the Solar Park site.
- Soil contamination, erosion, groundwater pollution related to operational activities for example water treatment plant and associated infrastructure such as possible evaporation ponds.
- Avifaunal Impacts for example large raptors and many larger bird species such as cranes and bustards are vulnerable to collisions with Solar Park infrastructure components or electrocution from power line infrastructure or associated infrastructure.
- Direct Faunal impacts due to noise, pollution, disturbance and human presence will be detrimental to fauna.
- Visual impacts on the 'sense of place' where the Solar Park and associated infrastructure is viewed as visually obtrusive.
- Social impacts, both positive and negative (job creation and economic benefits, noise from the operation of the Solar Park).

- Increased use of clean, renewable energy (positive).

The potential **cumulative** impacts of the proposed Solar Park and associated infrastructure may include:

- Impacts on Broad-Scale Ecological Processes and Loss of Landscape Connectivity – As there are several other renewable energy developments in the area, the development of the site will contribute towards cumulative impacts, particularly the loss of landscape connectivity.
- Reduced ability to meet conservation obligations & targets - The loss of unprotected vegetation types on a cumulative basis from the broad area may impact the countries' ability to meet its conservation targets.

Based on the results of the scoping study, four key potential impacts were identified that should receive consideration during the scoping phase public participation, authority consultation and detailed infrastructure layout planning for consideration in the EIA phase:

- The abundance of listed tree species within the site are likely to be relatively high and as there is little scope for avoidance it is likely that a large number of the trees will be impacted by the development. Depending on the exact number of trees that might be impacted, DAFF and provincial authorities may want to engage the developer through the EIA process with regards to the implementation of offset measures to compensate for the loss of the protected trees.
- The dunes at the site cannot be developed in their current state and it is likely that they will need to be levelled (depending on the viability and final layout) as part of the development. This is seen to constitute an irreversible impact as it is not likely that the dunes can be reformed when the facility is decommissioned. This will generate a large amount of loose sand at the site and it is likely that a long-term dust suppression and wind erosion management strategy will need to be developed to deal with this problem, should these areas be developed.
- There are a number of small rocks pans present at the site that forms the main sensitivity feature of the site. These pans are scattered across the site, but does only form a small overall portion of the study area. Not all the pans are of equal significance and those pans identified as most ecologically significant should be targeted for incorporation into corridors or green areas within the development.
- While the concentration of development within the current site can be viewed in a positive light as it reduces the overall footprint that would be required if the same output was obtained from a number of separate sites, it does increase the likelihood and significance of some impacts. In particular, there is little space between the different elements of the development and this will increase the potential disruption of landscape connectivity for fauna. It is recommended that the potential for the development of at

least one ecological corridor or 'green belt' be investigated as a possibility to reduce the potential impact of the development on the connectivity of the landscape.

With an understanding of the potential impacts and which areas of the Klipkraal 451 site would be impacted by the development of the proposed 1GW Upington Solar Park and associated infrastructure a more detailed infrastructure layout can be prepared for consideration in the EIA phase. During the EIA phase more detailed specialist (environmental and social) studies will be conducted in line with the Plan of Study contained in **Chapter 7** of this report. Therefore, a detailed Environmental Impact Assessment is required to be undertaken in order to provide an assessment of these potential impacts and recommend appropriate mitigation measures, where required.

CEF (SOC) LTD**1 GW UPINGTON SOLAR PARK, //KHARA HAIS MUNICIPALITY, NORTHERN CAPE
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ABBREVIATIONS

BID	Background Information Document
CAA	Civil Aviation Authority
CEF	Central Energy Fund (SOC) Ltd
CPV	Concentrating Photovoltaic
CSP	Concentrated Solar Power
CR	Central Receiver
DC	Direct Current
DEA	Department of Environmental Affairs
DEA&DP	Department of Environmental Affairs & Development Planning
DENC	Department of Environment and Nature Conservation
DOE	Department of Energy
DNI	Direct Normal Irradiance
DSG	Direct Steam Generation
DSR	Draft Scoping Report
DAFF	Department of Agriculture, Forestry & Fisheries
DWA	Department of Water Affairs
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EMPr	Environmental Management Programme
FSR	Final Scoping Report
GIS	Geographic Information System
GW	GigaWatt

Ha	Hectare
HIA	Heritage Impact Assessment
HTF	Heat Transfer Fluid
I&AP	Interested and Affected Party
IDP	Integrated Development Plan
IWUL	Integrated Water Use Licence
IPP	Independent Power Producer
Km	Kilometre
KV	Kilovolt
M	Metre
MSS	Main Solar Substation
NEMA	National Environmental Management Act (No. 107 of 1998)
NERSA	National Energy Regulator of South Africa
NWA	National Water Act (No 36 of 1998)
NWRS	National Water Resource Strategy
PPP	Public Participation Process
PoS	Plan of Study for EIA
PT	Parabolic Trough
PV	Photovoltaic
REIPPPP	Renewable Energy Independent Power Producer Procurement Programme
SAHRA	South African Heritage Resource Agency
SANRAL	South African National Roads Agency Limited
SANS	South African National Standards
SANBI	South African National Biodiversity Institute
SDF	Spatial Development Framework
SIA	Social Impact Assessment
SKA	Square Kilometre Array
SOC	State Owned Company
SPA	Solar Park Authority
SPC	Solar Park Concessionaire
ToR	Terms of Reference
VIA	Visual Impact Assessment
WMA	Water Management Area
WTW	Waste Treatment Works
WULA	Water Use Licence Application
WWTW	Waste Water Treatment Works

DOCUMENT CONTROL SHEET

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