

ENVIRONMENTAL IMPACT ASSESSMENT: PROPOSED PHOTOVOLTAIC ENERGY PLANT ON FARM HOEKPLAAS NEAR COPPERTON, NORTHERN CAPE



APRIL 2012



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EXECUTIVE SUMMARY: FINAL ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Background

Mulilo Renewable Energy (Pty) Ltd (Mulilo) proposes to construct a photovoltaic (PV) solar energy plant on a farm near Copperton in the Northern Cape. Aurecon South Africa (Pty) Ltd (Aurecon) has been appointed to undertake the requisite environmental process as required in terms of the National Environmental Management Act (No. 107 of 1998) (NEMA), as amended, on behalf of Mulilo.

The proposed project would take place on the farm Hoekplaas (Remainder of Farm No. 146) near Copperton in the Northern Cape (see **Figure 1**). The site lies approximately 7.8 km to the south of Copperton and borders to the Kronos substation. The farm is approximately 5 014 ha in size.

Proposed project

Mulilo proposes to construct a PV solar energy plant to generate approximately 100 MW (preferred alternative) or 150 MW (alternative) on the Hoekplaas farm (Farm 146/RE). The proposed PV plant would cover an area of approximately 300 ha (preferred alternative) or 450 ha (alternative), which is currently used for grazing.

In terms of associated infrastructures, the following would be required:

- Upgrade of existing internal farm roads and construction of new roads to accommodate the construction vehicles and access the site.
- Construction of a 132 kV transmission line, approximately 1.5 km in length, to connect the proposed PV plant with Eskom's grid via the Kronos substation.
- Electrical fence to prevent illegal trespassing, as well as keeping livestock from roaming between the solar arrays and causing accidental damage.
- Other infrastructure includes an office, connection centre and a guard cabin.

EIA Process

EIA Regulations (Regulations 544, 545 and 546) promulgated in terms of NEMA, identify certain activities, which "could have a substantial detrimental effect on the environment".

Purpose of this document

This document provides a summary of the Draft-Final Environmental Impact Assessment Report (EIAR) for the proposed PV solar energy plant near Copperton, Northern Cape. It provides a brief background and overview of the proposed project, a description of the public participation process undertaken thus far, the list of project alternatives and potential impacts that have been assessed.

You are invited to comment on the Draft Final Environmental Impact Assessment Report (EIAR) for the proposed development. The Draft Final EIAR has been lodged at the Prieska (Elizabeth Vermeulen) Public Library, Ietznietz Guest House in Copperton and on the Aurecon website (www.aurecongroup.com - change "Current Location" to "South Africa" and follow the Public Participation link).

Please review this Executive Summary and Update Page, as well as preferably, the full Draft Final EIAR, and submit your comments on the proposed project by Wednesday, 16 May 2012 Monday, 16 April 2012. To comment, write a letter, call or e-mail the Public Participation office.

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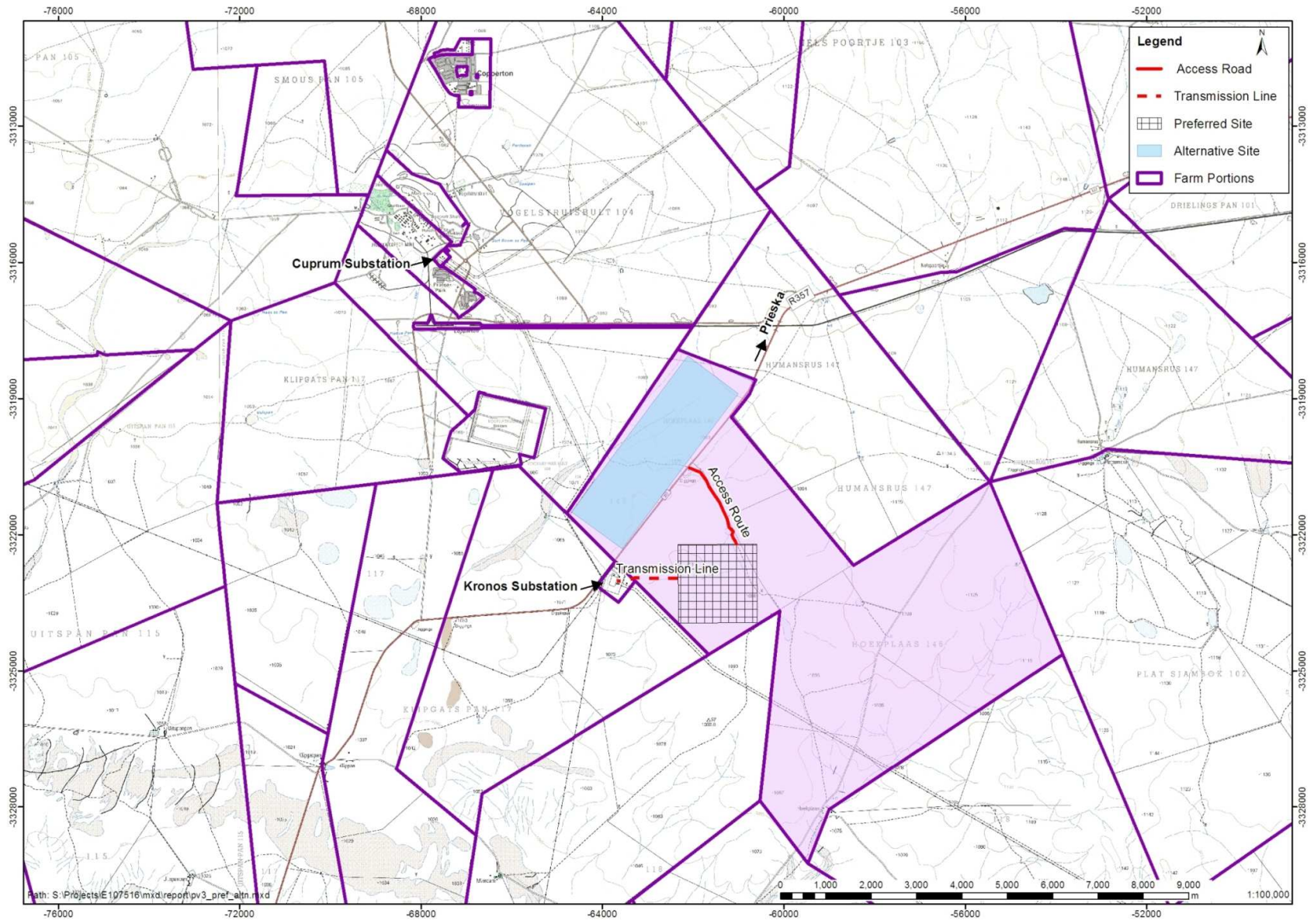


Figure 1 Location of the preferred and alternative locations for the proposed PV plant on the farm Hoekplaas near Copperton, Northern Cape (2922 CD)

These listed activities require environmental authorisation from the competent environmental authority, i.e. the Department of Environmental Affairs (DEA) in the case of energy applications, prior to commencing. This proposed project triggers a number of listed activities in terms of NEMA and accordingly requires environmental authorisation from DEA via the EIA process outlined in Regulation 543 of NEMA.

Aurecon has been appointed to undertake the required environmental authorisation and licencing processes on Mulilo's behalf.

The EIA process consists of an Initial Application Phase, a Scoping Phase and an EIA Phase. The purpose of the Initial Application Phase is to commence the project *via* the submission of the relevant department's application forms. The purpose of the Scoping Phase is to identify and describe potential positive and negative environmental impacts, (both social and biophysical), associated with the proposed project and to screen feasible alternatives to consider in further detail.

The purpose of the EIA Phase (the current phase) is to comprehensively investigate and assess those alternatives and impacts identified in the Scoping Report and propose mitigation to minimise negative impacts. Ultimately the EIAR provides the basis for informed decision-making by the applicant, with respect to which alternatives to pursue, and by DEA with respect to the environmental acceptability of the applicant's chosen option. This summary cannot replace the comprehensive EIAR, but it gives an overview of what is contained in the report.

How you can get involved

Public participation is a key component of this EIA process and will take place at various stages throughout the project.

The public participation process was initiated at the Draft Scoping Report (DSR) Phase and I&APs were notified of the DSR and associated comment period in the following way:

- Placement of advertisements in a local newspaper, the *Gemsbok*, notifying the broader public of the initiation of the EIA and inviting them to register as I&APs from 2 November 2011;
- Erection of a site notice at the entrance to Farm Hoekplas on 8 November 2011;
- Lodging the DSR at Prieska (Elizabeth Vermeulen) Public Library, Ietznietz Guest House in Copperton and on the Aurecon website from 8 November 2011. All registered I&APs were notified of the availability of the DSR by means of a letter sent by fax, post and/or e-mail on 7 November 2011. The notification letters also included a copy of the Executive Summary of the DSR in English and Afrikaans;
- I&APs had 40 days, until 5 January 2012, to submit their written comments on the DSR;
- On 6 December 2011 a second notification letter was distributed to I&APs regarding the extension of the comment period from 5 January 2012 to 9 January 2012 due to a delay that occurred during the mailing of the first notification letters; and
- Therefore I&APs had 40 days, until 9 January 2012, to submit their written comments on the DSR. Cognisance was taken of all comments when compiling the final report, and the comments, together with the project team and proponent's responses thereto, were included in final report.

Based on the comments received on the DSR during the 8 November 2011 to 9 January 2012 public comment period the DSR was updated and called the FSR. The second stage of the PPP involved the lodging of the FSR for review and comment at the same locations as the DSR.

- I&APs were provided with 21 calendar days to comment on the FSR between 18 January 2012 and 7 February 2012.

- Registered I&APs were informed of the FSR public comment period via a letter dated 16 January 2012 which was emailed or posted. An Executive summary together with an update page in English and/or Afrikaans was also emailed or posted to registered I&APs which highlighted the key changes made to the DSR as a result of the 40 day public comment period.

To date the current EIA Phase had provided the Draft EIAR to registered I&APs. This phase comprised:

- Lodging the Draft EIAR at Prieska (Elizabeth Vermeulen) Public Library, Ietznietz in Copperton on Aurecon’s website (www.aurecongroup.com change “Current Location” to South Africa and follow the “Public Participation” link) from **5 March 2012**; and
- Finalising the EIAR by incorporating all public comment received on the Draft EIAR into a Comments and Responses Report.

An appeal period, where I&APs have the opportunity to appeal against the Environmental Authorisation issued by DEA, will follow the EIA Phase.

Project alternatives

The following feasible alternatives were identified for further consideration in the EIAR:

- Location alternatives:**
 - One location for the proposed Hoekplaas PV plant; and
 - Electricity distribution via a 1.5 km 132 kV connection to Kronos substation.
- Activity alternatives:**
 - Solar energy generation via a PV plant; and
 - “No-go” alternative to solar energy production.
- Site layout alternatives:**
 - Two layout alternatives (100 MW with 300 ha footprint and 150 MW with 450 ha footprint).
- Technology alternatives:**
 - Two technology alternatives in terms of the solar panel type (PV and CPV); and
 - Four foundation options.

Identified impacts

The EIAR has provided a comprehensive assessment of the potential environmental impacts, identified by the EIA team and I&APs, associated with the proposed PV plant.

The following specialist studies and specialists were undertaken to provide more detailed information on those environmental impacts which had been identified as potentially being of most concern, and/or where insufficient information is available. A list of these specialist studies and the specialists who undertook the work are available in **Table 1**.

Table 1 List of specialist studies and the specialists who undertook the work

Study	Consultant and Organisation
Botanical assessment	Dr Dave McDonald of Bergwind Botanical Tours and Surveys
Agriculture potential assessment	Mr Kurt Barichiev of SiVEST
Aquatic assessment Hydrology	Mr James Mackenzie of Mackenzie Ecological & Development Services Mr Richard Hirst of SiVEST
Avifauna assessment	Dr Andrew Jenkins of Avisense Consulting
Heritage Impact Assessment Archaeology Cultural heritage	Mr Jayson Orton of ACO

Study	Consultant and Organisation
Palaeontology	Dr John Almond of Natura Viva
Visual Impact Assessment	Mrs Karen Hansen

The significance of the potential environmental (biophysical and socio-economic) impacts associated with the proposed project are summarised in **Table 2**.

With reference to **Table 2**, the most significant (**medium - high (-)**) operational phase impacts on the biophysical and socio-economic environment, without mitigation was for the potential impacts of the proposed PV plant on birds, visual aesthetics and surrounding landuses.

Table 2 Summary of significance of the potential impacts associated with the proposed development for all alternatives¹

OPERATIONAL PHASE IMPACTS		No Mit	With Mit
1.1	Impact on botany: Preferred layout	L	L
1.2	No-go alternative	L	L
2	Impact on birds	M-H	L-M
3	Impact on fauna	VL	VL
4	Impact on surface water	VL	VL
5	Visual aesthetics	M	L
6	Impact on energy production	L+	L+
7	Impact on climate change	L+	L+
8	Impact on local economy (employment) and social conditions	M+	M+
9	Impact on agricultural land	VL	VL
10	Impact on surrounding land uses	M	Undetermined
CONSTRUCTION PHASE IMPACTS		No Mit	With Mit
11	Impacts on flora, avifauna and fauna	L-M	L
12	Sedimentation and erosion	L	VL
13	Impact on traffic	VL	VL
14.1	Impact on heritage resources Archaeology: Preferred layout	L	L
14.2	Archaeology: Alternative layout	L	L
14.3	Palaeontology	L	L
14.4	Cultural heritage: Preferred layout	L	L
14.5	Cultural heritage: Alternative layout	M	M
16	Impact on local economy (employment) and social conditions	M+	M+
17	Visual impact	L	VL
18	Noise pollution	VL	VL
19	Storage of hazardous substances on site	L	L
20	Impact of dust	L	VL

¹ This table applies to all alternatives as no significant differences occur between alternatives.

With the implementation of mitigation measures the impact on visual aesthetics would decrease to **low - medium (-)**. It is not currently known what the significance of the impact on surrounding land uses would decrease to, however it is anticipated that mitigation measures agreed to in consultation with SKA would decrease to a level acceptable to SKA. The impact on visual aesthetics would decrease to **low (-)** with the implementation of mitigation measures. However the impact on the cultural landscape would remain the same. It should be noted that three potential positive impacts on energy production, climate change and local economy (employment) and social conditions would result and these would be of **medium (+)**, **low (+)** and **low (+)** significance (respectively), with and without mitigation measures.

In terms of differences in the significance of potential impacts of the feasible alternatives, there are none and as such Mulilo should choose their preferred alternative based on technical and financial considerations.

Conclusions and recommendations

The impacts associated with the proposed project would result in regional impacts (both biophysical and socio-economic) that would negatively affect the area. The significance of these impacts **without mitigation** is deemed to be of **medium or lower (-)** significance. However, with the implementation of the recommended mitigation measures the significance of the negative impacts would be minimized and would be **low or very low (-)**, for all but one impact.

Associated with the proposed project are positive impacts on climate change, energy production and local economy (employment) and social conditions of **low to medium (+)** significance.

Based on the above, the EAP is of the opinion that the proposed solar energy facility and associated infrastructure, including alternatives, being applied for be authorised as the benefits outweigh the negative environmental impacts. The significance of negative impacts can be reduced with effective and appropriate mitigation through a Life-Cycle EMP, as described in this report. If authorised, the implementation of an EMP should be included as a condition of approval.

Way forward

The Final EIAR has been lodged at the Prieska (Elizabeth Vermeulen) Public Library, Ietzniez in Copperton and on the Aurecon website (www.aurecongroup.com/)(change "Current Location" to "South Africa" and follow the Public Participation links). All registered I&APs have been notified of the availability of the Final EIAR by means of a letter which includes a copy of the Final EIAR Executive Summary and an Update Page. The public will have until **16 May 2012** to submit written comment on the Final EIAR to Aurecon.

The Final EIAR has been completed via the addition of I&AP comments and the addition of a letter from Mulilo indicating which mitigation measures will be implemented. The Final EIAR has been lodged at the same locations as the Draft EIAR and is available for comment until 16 May 2012. Any comments received will not be responded to but will be collated and forwarded to DEA for their consideration.

Once DEA has reviewed the Final EIAR, they will need to ascertain whether the EIA process undertaken met the legal requirements and whether there is adequate information to make an informed decision. Should the above requirements be met, they will then need to decide on the environmental acceptability of the proposed project. Their decision will be documented in an Environmental Authorisation, which will detail the decision, the reasons therefore, and any related conditions. Following the issuing of the Environmental Authorisation, DEA's decision will be communicated by means of a letter to all registered I&APs and the appeal process will commence, during which any party concerned will have the opportunity to appeal the decision to the Minister of Environmental Affairs in terms of NEMA.

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List of Acronyms

DEA	Department of Environmental Affairs
DSR	Draft Scoping Report
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMP	Environmental Management Programme
ha	Hectare
I&AP	Interested and Affected Party
km	Kilometer
kV	Kilovolt
MW	Megawatts
NEMA	National Environmental Management Act