

Prepared for:  
ABO Wind renewable energies (Pty) Ltd



# BACKGROUND INFORMATION DOCUMENT

Basic Assessment (BA) and Scoping & Environmental Impact  
Assessment (EIA) Processes  
for the  
PROPOSED DEVELOPMENT OF SIX SOLAR PHOTOVOLTAIC (PV)  
FACILITIES (I.E. AARDVARK SOLAR FACILITIES), AND VARIOUS  
ASSOCIATED INFRASTRUCTURE, NEAR COPPERTON,  
NORTHERN CAPE

August 2021

Prepared by:  
Council for Scientific and  
Industrial Research (CSIR)



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## 1. INTRODUCTION AND PROJECT BACKGROUND

ABO Wind renewable energies (Pty) Ltd<sup>1</sup> (hereinafter referred to as ABO Wind) is proposing to develop six Solar Photovoltaic (PV) power generation facilities and associated Electrical Grid Infrastructure (EGI), north-east of the town of Copperton and south-west of the town of Prieska, in the Siyathemba Local Municipality and Pixley Ka Seme District Municipality, in the Northern Cape Province. Each project will have a specific Project Applicant. The proposed projects will make use of PV solar technology to generate electricity from energy derived from the sun. Each solar PV facility will have a range of associated infrastructure, as discussed below.

The project is intended to address the current energy shortages in South Africa and assist in meeting the need for additional renewable energy generation capacity, as required by the Integrated Resource Plan (IRP) of 2019. The total generation capacity of the entire project would be in the order of approximately 1 350 Megawatts alternating current (MWac). As a means of comparison, for 2021 the municipal area of Kimberley in the Northern Cape has a total electricity load forecast of 747 MW and the total load forecast for the Northern Cape is 1255 MW (Eskom, 2020<sup>2</sup>). The total provincial peak load forecast for the Northern Cape is expected to increase to about 1784 MW by 2030 (Eskom, 2020<sup>2</sup>).

The following 11 projects are proposed:

- **Project 1 to Project 6:** Aardvark Solar Facilities 1 to 6 and associated infrastructure;
- **Project 7:** Collector Station and incoming 132 kV Overhead Power Lines from each on-site substation complex at the Solar PV Facilities;
- **Project 8:** 132 kV Overhead Power Line (i.e. Aardvark – Kronos West) from the Aardvark Solar Facilities to the Eskom Kronos Substation, including an upgrade and expansion of Electrical Infrastructure at the Eskom Kronos Substation;
- **Project 9:** 132 kV Overhead Power Line (i.e. Aardvark – Kronos East) from the Aardvark Solar Facilities to the Eskom Kronos Substation, including an upgrade and expansion of Electrical Infrastructure at the Eskom Kronos Substation;
- **Project 10:** 132 kV Overhead Power Line from the Aardvark Solar Facilities to the Cuprum Substation, via the Copperton Wind Energy Facility (WEF) (including extensions thereto); upgrades of the existing 132 kV Overhead Power Line from the Copperton WEF to the Cuprum Substation; and proposed development or upgrades of an existing 132 kV Overhead Power Line from the Cuprum Substation to the Eskom Kronos Substation; and
- **Project 11:** 132 kV Overhead Power Line from the Aardvark Solar Facilities to the Cuprum Substation, via the Garob WEF (including extensions thereto); upgrades of the existing 132 kV Overhead Power Line from the Garob WEF to the Cuprum Substation; and proposed development or upgrades of an existing 132 kV Overhead Power Line from the Cuprum Substation to the Eskom Kronos Substation.

**Projects 1 to 6** will include the following proposed key infrastructure:

- Solar Field, comprising Solar Arrays with a maximum height of approximately 3.5 m.
- The developable area (i.e. project footprint) for each PV Facility and associated infrastructure will range from approximately 283 to 491 hectares. The combined developable area of Aardvark Solar Facility 1 to 6 and associated infrastructure will be approximately 2 349 hectares.

<sup>1</sup> ABO Wind renewable energies (Pty) Ltd is the holding company. Various subsidiary companies will serve as the Project Applicants. Details of the subsidiary companies will be provided in the Assessment Reports.

<sup>2</sup> Eskom (2020). Transmission Development Plan (2021 – 2030). Accessed online. August 2021.

- The generation capacity of each PV Facility will range from 200 MWac to 250 MWac.
- Building Infrastructure at each PV Facility (e.g. offices; operational and maintenance control centres; warehouse/workshops; ablution facilities; Inverter-Transformer stations; and guard houses.
- Two on-site substation complexes at each PV Facility, with an estimated 200 - 250 MVA transformation capacity, and generally stepping up from 22 kV or 33 kV to 132 kV for connecting to the Eskom grid. Note that Aardvark Solar Facility 1 and Aardvark Solar Facility 2 will each have two additional on-site substation complexes.
- Two Lithium Ion or Redox Flow Battery Energy Storage Systems (BESS) at each PV Facility. Each BESS will have an area of ~ 5 ha, height up to 10 m, and capacity of ~ 500MW/500MWh.
- Associated Infrastructure at each PV Facility (e.g. temporary construction laydown areas; internal roads up to 5 m wide; upgrading of existing access roads; fencing; storm water channels; panel maintenance and cleaning area; underground low voltage cables or cable trays; and 22 or 33 kV internal power lines (underground)).

The power line details for **Projects 7 to 11** are indicated below:

- Pylon: 132 kV steel monopole or lattice towers;
- Height: Up to 21 m;
- Span length: Up to 375 m;
- Servitude width: 31 m for 132 kV power lines; and
- Assessment Corridor: 300 m wide corridor for all the power lines listed above will be assessed.

Refer to Figure 1 for a locality map of the proposed projects.

## 2. Need for Environmental Authorisations and Reporting Structure

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In terms of the National Environmental Management Act (Act 107 of 1998, as amended) (NEMA) and the 2014 NEMA Environmental Impact Assessment (EIA) Regulations (as amended), published in Government Notice (GN) R326, R327, R325 and R324 on 7 April 2017 in Government Gazette 40772 (and amended on 11 June 2021 in GN 517), the proposed projects require Environmental Authorisation (EA). Projects 1 to 6 will each require a full Scoping and EIA Process. The remaining projects, i.e. Projects 7 to 11, will each require a Basic Assessment (BA) Process. The **key** Listed Activities triggered by the proposed projects are listed below:

- **Projects 1 to 6: Listing Notice 2 (GN R325), Activity 1:** *The development of facilities or infrastructure for the generation of electricity from a renewable resource where the electricity output is 20 megawatts or more, excluding where such development of facilities or infrastructure is for photovoltaic installations and occurs: a) within an urban area; or b) on existing infrastructure.*
- **Projects 7 to 11: Listing Notice 1 (GN R327), Activity 11 (i):** *The development of facilities or infrastructure for the transmission and distribution of electricity - (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts or more.*

The complete list of listed activities will be confirmed and detailed during the BA and EIA Processes. Furthermore, the proposed Aardvark Solar Facilities and associated EGI are not located within any of the Renewable Energy Development Zones (REDZs) or Strategic Transmission Corridors that were gazetted in 2018 and 2021.

The National Department of Forestry, Fisheries and the Environment (DFFE) has been identified as the Competent Authority in terms of Section 24C of the NEMA. In accordance with Regulation 12 (1) of the 2014 NEMA EIA Regulations (as amended), the Council for Scientific and Industrial Research (CSIR) Environmental Management Services (EMS) group has been appointed as the Environmental Assessment Practitioner (EAP) to undertake the required Environmental Assessment Processes.

Approval has been granted by the DFFE to submit combined Applications for EA in terms of Regulation 11 (4) of the 2014 NEMA EIA Regulations (as amended), and the issuing of multiple EAs (should they be granted) in terms of Regulation 25 (1) and (2) of the 2014 NEMA EIA Regulations (as amended). Therefore, one combined Scoping Report and one combined EIA Report will be compiled for Projects 1 to 6, as well as one combined BA Report for Project 7, one combined BA Report for Projects 8 and 9, and one combined BA Report for Projects 10 and 11, as indicated in Table 1 below. It is proposed that 17 separate EAs will be issued for each PV Facility and associated infrastructure (should they be granted).

Table 1: Summary of the Reporting Structure

Project Number	No. of Applications for EA	No. of BA/EIA Reports	No. of EAs
Projects 1 to 6	1 Combined Application for EA	1 Combined Scoping Report 1 Combined EIA Report	6 EAs
Project 7	1 Combined Application for EA	1 Combined BA Report	7 EAs
Projects 8 to 9	1 Combined Application for EA	1 Combined BA Report	2 EAs
Projects 10 to 11	1 Combined Application for EA	1 Combined BA Report	2 EAs

### 3. Specialist Studies

Various specialist assessments and/or compliance statements are required for the Scoping and EIA, and BA Processes, as indicated in Table 2 below. Note that the CSIR will provide inputs on Civil Aviation and Defence. In line with the combined reporting noted above, one combined specialist report per theme indicated in Table 2 will be compiled for **(1)** Projects 1 to 6 (i.e. to address all six Solar PV facilities and associated infrastructure); and **(2)** Projects 7 to 11 (i.e. to address all EGI). Note that where relevant, the specialist assessments will comply with Appendix 6\* of the 2014 NEMA EIA Regulations (as amended), or the Assessment Protocols published in GN R320 on March 2020<sup>#</sup>; or the Assessment Protocols published in GN R1150 on October 2020<sup>^</sup>. The BESS Risk Assessment will serve as a technical report, and the aforementioned legislation will thus not be applicable.

Table 2: Summary of the Specialist Reporting Structure

Specialist Assessment/Theme	Projects 1 to 6	Projects 7 to 11
▪ Agriculture and Soils <sup>#</sup>	✓	✓
▪ Terrestrial Biodiversity <sup>#</sup> , Terrestrial Plant Species <sup>^</sup> and Terrestrial Animal Species <sup>^</sup>	✓	✓
▪ Aquatic Biodiversity and Species <sup>#</sup>	✓	✓
▪ Avifauna Assessment <sup>^</sup>	✓	✓
▪ Visual Impact Assessment*	✓	✓
▪ Heritage Impact Assessment*	✓	✓
▪ Palaeontology Assessment*	✓	✓
▪ Socio-Economic Assessment* (PV only)	✓	☒
▪ Traffic Impact Assessment* (PV only)	✓	☒
▪ BESS Risk Assessment (PV only)	✓	☒

## 4. Environmental Assessment Process and Public Participation

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The BA, and Scoping and EIA, processes will provide a detailed description of the proposed projects and an assessment of the potential impacts that the projects may have on the environment. It also includes the development of an Environmental Management Programme (EMPr) which outlines the environmental management actions that need to be implemented by the Applicant to avoid and minimise any potential negative environmental impacts; and to enhance any potential positive impacts that may arise.

Initially the Application for EA for Projects 1 to 6 will be lodged with the DFFE. Following this, a Draft Scoping Report (DSR) for Projects 1 to 6 will be released to Interested and/or Affected Parties (I&APs), Stakeholders and Departments (including the DFFE) for a 30-day comment period. Thereafter, the Final Scoping Report (FSR) for Projects 1 to 6 will be compiled taking relevant comments received into account, and will be submitted to the DFFE for decision-making. The DFFE will then either accept the FSR or refuse EA, within 43 days of receipt of the FSR.

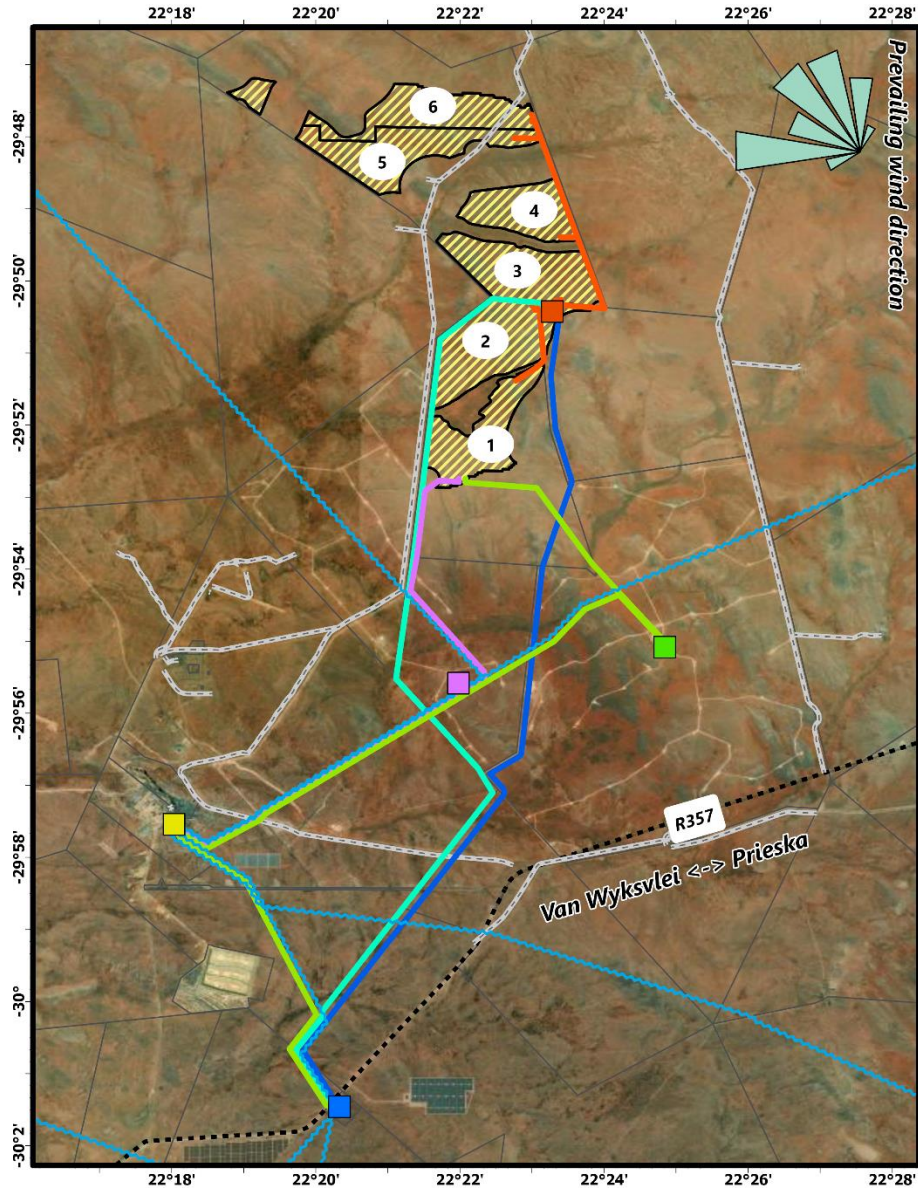
Should the FSR be accepted, the EIA Phase will thereafter commence. The next step of the process is to submit the Application for EA for Projects 7 to 11 to the DFFE. Following this, a Draft EIA Report (DEIAR) for Projects 1 to 6; and three Draft BA Reports (DBARs) for Projects 7 to 11 will be released to I&APs for a 30-day comment period. Thereafter, the Final EIA Report (FEIAR) for Projects 1 to 6; and three Final BA Reports (FBARs) for Projects 7 to 11 will be compiled based on consideration of relevant comments received, and will be submitted to the DFFE for decision-making. The DFFE will then either grant or refuse EA for the various projects within 107 days of receipt of the FEIAR and FBARs.

An integrated Public Participation Process (PPP) will be undertaken as part of the BA and EIA Processes for Projects 1 to 11, and all applications necessary in respect of other applicable legislation. The BA and EIA Processes will also confirm if a Water Use Authorisation is required in accordance with the National Water Act (Act 36 of 1998, as amended). Comments, in terms of the National Heritage Resources Act (Act 25 of 1999), will also be sought from the South African Heritage Resources Agency (SAHRA) as part of the BA and EIA Processes.

## 5. How to Get Involved?

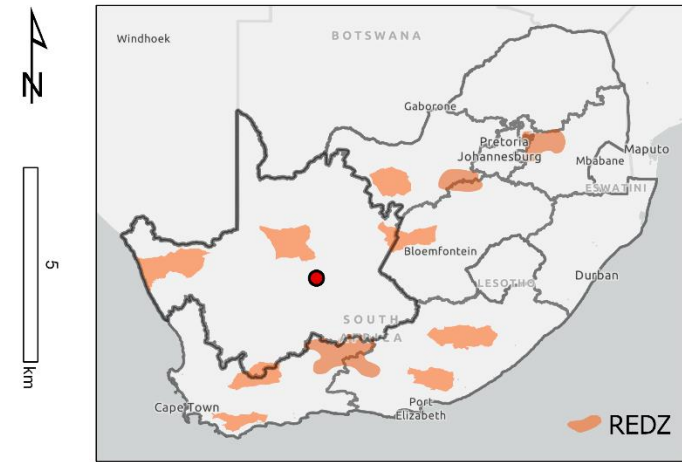
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Should you be interested in registering as an I&AP and to provide comments on these proposed projects, you are kindly requested to e-mail your name and contact details, with an indication of any direct, business, financial, personal or other interest which you may have in these applications, to the EAP at the CSIR: Kelly Stroebel (Tel: 021 888 2400; E-mail: [ems@csir.co.za](mailto:ems@csir.co.za) (with "Aardvark PV" as the subject line); Postal address: PO Box 320, Stellenbosch, 7599; or Fax: 021 888 2693). The project website will be updated during the process: <https://www.csir.co.za/environmental-impact-assessment>



# Proposed Aardvark Solar PV facility near Prieska, Northern Cape Province South Africa

- 6 x PV areas
  - Proposed Aardvark PV collector station
  - Access roads
- Proposed powerline routing**
- All PV to collector station
  - Direct to Kronos (eastern route)
  - Direct to Kronos (western route)
  - PV 1 via Garob-Cuprum to Kronos
  - PV 1 via Copperton-Cuprum to Kronos
- Existing electricity infrastructure**
- Existing Garob WEF substation
  - Copperton WEF substation
  - Cuprum substation
  - Eskom Kronos Main Transmission Station
  - Eskom HV powerlines



Name: GCS WGS 1984; Map Units: Degree  
 Earthstar Geographics, Esri, HERE, Garmin, FAO, NOAA, USGS

Figure 1: Locality of the Proposed Aardvark Solar Facilities and EGI