

## **EXECUTIVE SUMMARY**

### **1. INTRODUCTION**

Mulilo Renewable Energy (Pty) Ltd (later referred to as Mulilo) has identified two alternative sites for the establishment of a 10MW photovoltaic (PV) power generation facility in the town of De Aar in the Northern Cape Province of South Africa. The preferred site consists of a single property, Farm No. 145/2 located North West of the town of De Aar and has therefore been named, the North West site (Alternative 1, preferred), while the alternative site also consists of a single property, Farm No. 180/1 located South East of the town of De Aar and will therefore be referred to as the South East site (Alternative 2).

In addition to the power plant, associated infrastructure such as roads, water pipelines, electricity distribution lines, storerooms and temporary waste storage facilities may be required. The relevant properties are currently zoned as Agriculture Zone I and development on either site will consist of a 400m X 400m array of photovoltaic (PV) panels with a development footprint of 17ha. Both sites have been secured, with Mulilo entering into long term agreements with the land owners. Grid connectivity has been discussed with ESKOM, who are supportive of this project and the government of South Africa is ready to enter into a power purchase agreement as soon as the mechanism is initiated.

The nature and extent of the proposed PV power generation facility as well as the potential environmental impacts associated with construction of this facility are assessed and discussed in more detail in this Final Environmental Impact Assessment (EIA) Report.

DJ Environmental Consultants (DJEC) has been appointed by Mulilo as the independent environmental assessment practitioner to undertake the required EIA process and associated public participation.

### **2. LOCATION OF PROJECT**

The proposed project site lies in the arid Karoo and mountain ranges of the most Southerly part of the Northern Cape Province. The town of De Aar lies on the N10, linking Port Elizabeth on the south coast of the Eastern Cape, crossing the N1, with Upington in the North. The North West site is 2.5km from the centre of the town, the centre of the site is 3.5km from the centre of the town. De Aar falls under the jurisdiction of Emthanjeni Local Municipality.

Please note that during the scoping phase a drainage line that runs through the property and regarded as a sensitive area was identified by the botanical study. It was therefore recommended that the proposed site be **moved at least 200m to the south west**, away from the drainage line and its buffer. This issue has now been addressed by moving the proposed PV site **250m south west** of the drainage line. The revised proposed PV site is still located close to Eskom's De Aar Municipal substation through which the generated power will be transmitted.

### **3. DESCRIPTION OF PROPOSED PROJECT**

The applicant intends to establish a 10 MW photovoltaic facility. The proposed site is located in the central part of South Africa where there is very good solar radiation due to the low incidence of cloud cover, and moderate altitude of over 1000m above sea level.

The proposed De Aar photovoltaic facility will be built in one phase, with a total construction period of an estimated six months, of which one month will consist of laying the foundation, and the remainder of the time will be spent laying the PV panels onto the steel mounting brackets and completing the connection to the electrical grid. The power generation facility will be made up of a 400m x 400m array of photovoltaic panels laid out in rows.

#### **Physical development**

The proposed site is 2.5km from the centre of the town and the centre of the site is 3.5km from the centre of the town. The proposed development is situated close to the De Aar Municipal Substation where power will be transmitted at 22kV. The power will then be stepped up to 132kV and fed into the national grid through Hydra Substation. Transmission lines run from Mpumalanga through Hydra to the Eastern -, Western – and Northern Cape Provinces, as well as to Namibia.

The area required for construction will be 1.7 hectares per MW of installed PV panels, giving a total of 17ha for the 10MW facility. The PV panels to be used will be YL 235-29b panels, with dimensions of 1650mm by 990mm.

Materials to be imported will be shipped to the Cape Town Harbour. A 10 ton excavator will be used to excavate foundations and the PV panels will be laid out onto the steel mountings by hand. Existing gravel roads with a minimum width of 4m will be upgraded and/or established to provide access to the proposed PV facility.

## 4. ALTERNATIVES

### Alternative 1 (Preferred Alternative)

This is the preferred alternative for the establishment and development of the solar energy facility in De Aar under which the PV facility will be established on Farm 145/2 (the North West site) and generate 10MW of electricity.

### Alternative 2 – Location Alternative

Alternative 2 involves establishing the same PV facility with a generation capacity of 10MW on Farm 180/1 (the South East site).

### Alternative 3 - No Development Alternative

This is the No Go option, under which no PV facility is established on any of the sites and the status quo is maintained.

Various technical considerations make Alternative 1 the preferred alternative due to the following reasons:

- 1) **Power Yield (AEP):** The characteristics of the solar resource profile of this specific site, that is, high solar insolation and minimum cloud cover, makes it possible to maximize the available solar energy potential (the annual amount of power that can be gathered).
- 2) **Proximity to a substation:** The very close proximity of the site to the De Aar Municipal Substation makes it easier to connect output onto the national grid. There are no other suitable sites in the vicinity of this substation.
- 3) **Topography:** The topography of the site is reasonably flat and ideal for laying out PV arrays.
- 4) **Roads:** The location can easily be accessed by gravel roads which will be upgraded and established leading up to the site.

## 5. LEGISLATIVE REQUIREMENTS

The proposed project constitutes listed activities in terms of the National Environmental Management Act, 1998 (No. 107 of 1998) (NEMA) and the National Heritage Resources Act, 1998 (No. 25 of 1998) (NHRA) and thus may not commence without environmental authorisation from the competent authority, being the Department of Environmental Affairs

and Tourism (DEAT). Despite the project being located in the Northern Cape, all renewable energy projects nationwide are being overseen by DEAT. The national competent authority, and thus the authorizing body for the proposed development, will therefore be DEAT. The Scoping and EIA process is being undertaken in accordance with the requirements of the NEMA EIA Regulations published in Government Notices No. R385, R386 and R387, 2006 and Section 38(1) of the NHRA. In terms of planning permission, it is proposed that a special zone be designated in order for the PV facility to be placed on the site which is currently zoned for Agricultural purposes.

## **6. SPECIALIST FINDINGS**

### **Botany**

From a botanical perspective, the vegetation type on both alternative sites is not regarded as threatened on a national basis, and is very widespread within the Nama Karoo. Both alternative sites support vegetation in medium to good condition, and are of Medium overall botanical sensitivity. Although the No Go alternative is marginally preferred, either of the development alternatives is acceptable from a botanical point of view, and the two alternative sites assessed present no significant or important constraints to the proposed development.

### **Avifauna**

The avifaunal study indicated that neither of the two proposed development areas supports any important bird populations, and the proposed PV facility is likely to have no significant, long-term impact on the local avifauna. Alternative 1 is preferred.

### **Archaeology**

In terms of archaeological heritage, the proposed activity is viable. While impacts on the North West Alternative are expected to be negative, these can be effectively mitigated. With regard to the South-East Alternative, no significant negative archaeological impact was identified.

### **Palaeontology**

The palaeontological study indicated that the comparatively small footprint of the proposed facility and the shallow excavations envisaged warrant no further palaeontological mitigation.

## Heritage

The heritage impact assessment indicated both the North West and South East sites as being of low heritage significance.

## Visual

The visual impact of the proposed development has been assessed as moderate-high and with time will reduce to moderate. The *north west* option (Alternative 1) is a smaller site, affecting fewer receptors and has a smaller viewshed than the south-east option (Alternative2). From the visual perspective, the north-west site is preferred.

## Cumulative impacts

The cumulative impacts will fall mainly in the spheres of land use change and visual impact.

## 7. WAY FORWARD

This report is being made to the Department for a decision. Once an Environmental Authorization (previously called a Record of Decision) is issued all registered Interested and Affected Parties will be notified of the decision and details of the appeal procedure will be provided. The decision made by the DEA will be made known within 10 days after receipt to all registered I&APs. A person affected by the decision who wishes to appeal against the decision, must lodge a written notice of intention to appeal with the MEC within 10 days of being notified of the decision taken by the Department. Following the lodging of the Notice of Intent to Appeal, the appeal submission must be submitted to the Department within the 30 days after the Notice of Intention to Appeal was lodged with the Office of the MEC.

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