

**Cape Environmental Assessment Practitioners (Pty) Ltd**

Tel: 044 874 0365

Fax: 044 874 0432

17 Progress Street, George

P.O. Box 2070, George, 6530

[www.cape-eaprac.co.za](http://www.cape-eaprac.co.za)

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**RE: Request for site selection matrix for a proposed solar energy facility**

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Dear Mr Holder,

Our earlier correspondence refers whereby it was requested that Atlantic Renewable Energy Partners (Pty) Ltd (AEP), on behalf of AEP Kathu Solar (Pty) Ltd, provide a site selection matrix for the development of a solar energy facility in the Kathu region designated to be the Kathu Solar PV Energy Facility (SEF). It is our understanding that the Department of Energy (DoE) will favour projects which are, *inter alia*, in close proximity to a demand centre, so as to reduce the losses associated with power transmission.

The site identified by us, being the most preferable for the Kathu Solar PV Energy Facility, is the farm known as Legoko Farm No 460 portion 0, situated in the District of Kuruman Rd, Northern Cape Province, in extent 1370,8980 ha (one thousand three hundred and seventy point eight nine eight zero hectares); hereinafter referred to as the Site. This is based on our extensive investigation of prospective sites in the Kathu area, backed by the following findings:

**1. Proximity to access road for transportation of material and components**

Large volumes of material and components would need to be transported to the project site during the construction phase of the project. The accessibility of the Site was therefore a key factor in determining the viability of the Kathu SEF, particularly taking transportation costs (direct & indirect) into consideration and the impact of this on project economics and therefore the ability to submit a competitive bid under the DoE's IPP Procurement Programme.

**2. Proximity to towns with a need for socio-economic upliftment**

The Site is situated in close proximity to the town of Kathu and relatively close proximity to the towns of Deben and Kuruman. These towns are typically masked with high rates of unemployment, as is the case in the Northern Cape. The closest cities in the area are Kimberley and Upington, which both also experience the same level of unemployment and poverty. Consequently, local labour would be easy to source, which fits in well with the IPP Procurement Programme economic development criteria for socio-economic upliftment.

Currently, a large proportion of local labour is used in the mining and agricultural industry. A few negatives related to agricultural employment are that it is very seasonal and it is not always in close proximity to their homes, forcing workers to travel large distances on a daily basis to reach their place of employment. Over the years, employment in the mining sector has shown a dramatic decrease.

### **3. Land availability**

The majority of land surrounding the Kathu town is considered to be undevelopable, largely due to the existing town commonage and mining land reserved for related mining activities. Portions 0, 1 and 2 of Legoko Farm No 460 are a few of the available privately owned land parcels suitable for solar PV development.

### **4. Camel Thorn concentrations**

There is a high concentration of Camel Thorn trees in the Kathu region, a tree type currently listed in South Africa, under the National Forest Act as being protected. To this extent it was paramount to finding a site where the least number of Camel Thorns would be required to be removed. Of all the proposed SEF developments in the Kathu region, it is believed that the Site features the some of the lowest number of Camel Thorns (sites to the North of Kathu have high Camel Thorn concentrations in comparison to this site), and therefore the Site poses the least potential impact as a SEF.

### **5. Declining farming activity in the area**

For a number of reasons, agricultural land around Kathu generally has very low agricultural potential, owing particularly to the following factors:

- The depletion of underground water resources due to mining activity; and
- Stock theft is a persistent problem in the area and therefore the area sees low agricultural production as sheep farming and other forms of small livestock farming proves to be challenging.

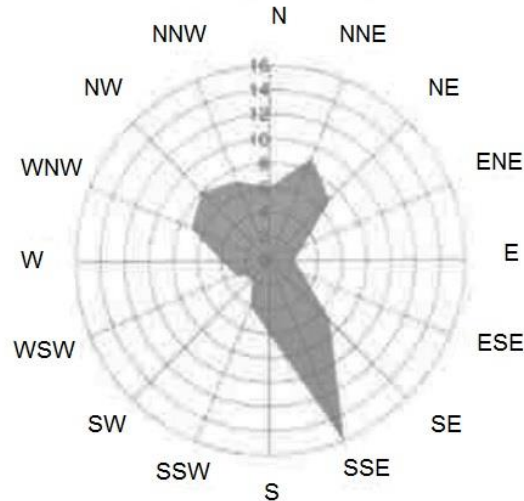
### **6. Kathu airport**

The Sishen / Kathu airport is located approximately 18km to the north-west of the Site, and therefore will not pose any threat to the aviation industry.

### **7. Wind and dust consideration**

The Kumba iron ore mine is to north-west of the Site and venturing closer to the mining area in Kathu / Sishen would expose the SEF to increased dust levels thus reducing the efficiency of the solar PV modules and hence power generation of the SEF. The wind direction distribution for the Kathu / Sishen region appears to be predominantly towards the north-west which it is hoped will blow most of the dust from the mine away from the Site.

**Wind direction distribution Kathu/ Sishen all year**  
windfinder.com



## 8. Access to grid

Access to the Eskom grid is vital to the viability of a SEF. The Developer corresponded with Eskom network planners to understand their future demand centres as well as strategic plans to upgrade and strengthen any local networks. It is understood that Eskom is planning to develop the new Sekgame Switching Station approximately 5km south of the existing Ferrum MTS, and that they intend to connect new SEF's into this Switching Station. The Site is located close to the Ferrum MTS, which allows it to evacuate power into the National Transmission System to be distributed at high voltages to other load centres around the country.

## 9. Critical transmission power corridors

Eskom's '2040 Transmission Network Study' has drawn on various scenarios to determine the grid's development requirements, as well as to identify critical power corridors for future strategic development, of which the Northern corridor is one of these. The national power corridors have been refined and consolidated into five transmission power corridors of 100 km in width, which are being used by the Department of Environmental Affairs (DEA) for a strategic environmental assessment (SEA) which will seek to identify environmentally acceptable routes over which long-term environmental impact assessment (EIA) approvals can be secured. The Site falls into the Northern corridor.

Based on the above list of findings it was decided that the proposed site would be suitable for such a development. With consideration to the farm extents, it is believed that the site could accommodate the maximum 75 MW contracted capacity permitted under the DoE's RFP, and furthermore, that all this power would be able to be absorbed into the national grid under stipulated contingency conditions.

Please do not hesitate to contact me if any other information is needed regarding this request.

Yours sincerely,



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David Peinke

Director, Atlantic Renewable Energy Partners