

24 June 2019

Cape Environmental Assessment Practitioners (Pty) Ltd

Tel: 044 874 0365

Fax: 044 874 0432

5 Progress Street, Eagle View Building, 1st floor

P.O. Box 2070, George, 6530

www.cape-eaprac.co.za

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

Dear Mr Holder,

Our earlier correspondence refers whereby it was requested that Atlantic Renewable Energy Partners (Pty) Ltd ("AEP"), on behalf of Bloemsmond Solar 5 (Pty) Ltd, provide a site selection matrix for the development of a PV solar energy facility ("SEF") in the Upington region designated to be Bloemsmond 5. The most preferable location we have identified for Bloemsmond 5 is Portion 5 and Portion 14 of the farm Bloemsmond No.455, which is located approximately 30 km south west of Upington and 16 km north east of Keimoes in the Kai !Garib Local Municipality (ZF Mgcawu District Municipality) in the Northern Cape, hereinafter referred to as the Site.

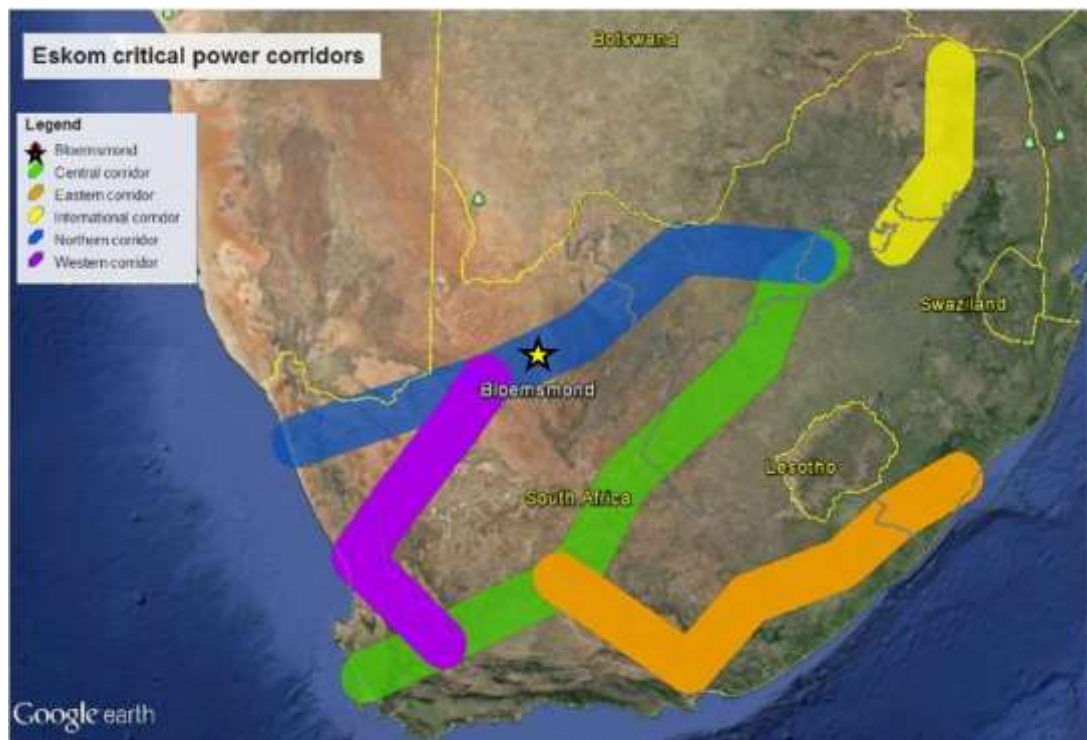
This is based on our extensive investigation of prospective sites in the Upington area, backed by the following findings:

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

The Site is situated approximately 30 km south west of Upington in the Northern Cape Province. The Kai! Garib Local Municipality is typically masked with high rates of unemployment and poverty, which is largely the case throughout the Northern Cape Province. To this extent Bloemsmond 3 is situated in close proximity to the towns of Upington, Kleimoes and Kakamas. Consequently, local labour would be easy to source, which fits in well with the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) economic development criteria for socio-economic upliftment. Currently, a large proportion of local labour is used in the mining and agricultural industry. There are several negatives related to agricultural employment however; that it is very seasonal and it is not always in close proximity to the homes of farm workers, 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 to be very volatile. The Northern Cape has been identified as a node for the development and construction of Solar PV within South Africa and the locality of the Bloemsmond Site would therefore present new opportunities for local skilled labour through previous work experience on surrounding preferred bidder plants.

2. Access to grid

Power transmission considerations: The new Upington MTS is located in close proximity to the Site. The preferred option connects directly into the proposed new Eskom Upington MTS Substation, via the proposed Bloemsmond Collector Substation. Ease of access into the Eskom electricity grid is vital to the viability of a solar PV facility. Projects which are in close proximity to a connection point and/or demand centre are favourable, and reduce the losses associated with power transmission. In addition, 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 consisting of five transmission power corridors of 100 km in width have been gazetted by the Department of Environmental Affairs (DEA) following the outcomes of the strategic environmental assessment (SEA) which aimed to identify environmentally acceptable routes over which long-term environmental impact assessment (EIA) approvals can be secured. The Bloemsmond 3 Site falls into the Northern corridor (refer to Figure 2.1).



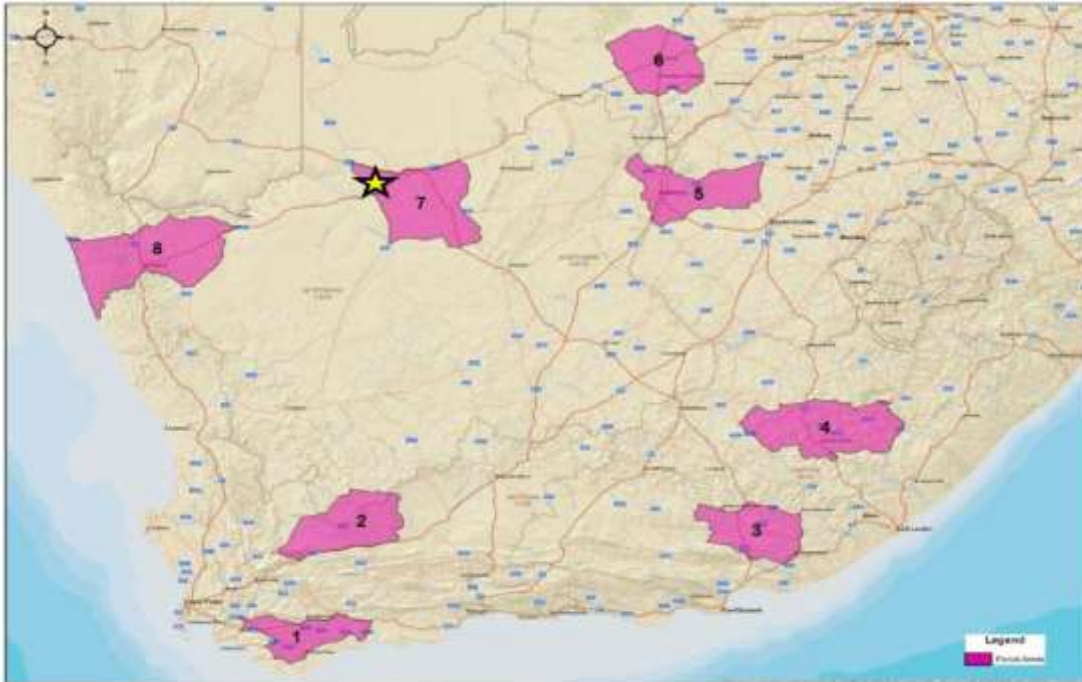
Eskom “Critical Power” Corridors. The Bloemsmond 53 Site is within the northern corridor as shown by the yellow star.

3. Need and Desirability of the Development at the preferred site location

The Upington area has been ear-marked as a hub for the development of solar energy projects due to the viability of the solar resource for the area, and this area is included in the solar corridor which has been identified by the Northern Cape Spatial Development Framework. The overarching objective for the solar energy facility is to maximise electricity production through exposure to the solar resource, while minimising infrastructure, operational and maintenance costs, as well as social and environmental impacts. From a regional site selection perspective, this region is considered to be preferred for solar energy development by virtue of its annual solar irradiation values. From a local perspective, the Site has specifically been identified as being highly desirable for the development of a solar PV facility due to its suitable topography (i.e. in terms of slope and local topography), site access (i.e. to facilitate the movement of machinery during the construction phase), land availability, the extent of the site, and enabling optimal placement of the infrastructure considering potential environmental sensitivities or technical constraints, as well as the consolidation of renewable projects within an already identified node.

4. REDZ

The DEA has been mandated to undertake a Strategic Environmental Assessment (SEA) process. The wind and solar photovoltaic SEAs were previously undertaken identify geographical areas most suitable for the rollout of wind and solar photovoltaic energy projects and the supporting electricity grid network. The DEA and CSIR have released a map with focus areas best suited for the roll-out of wind and solar photovoltaic energy projects in South Africa. The SEA to identify phase 2 REDZ is currently being undertaken. The aim of the assessment is to designate renewable energy development zones (REDZs) within which such development will be incentivised and streamlined. The proposed Bloemsmond Solar Site project falls within the gazetted geographical areas / focus area most suitable for the rollout of the development of solar energy projects (called “Upington Solar priority area”) within the Northern Cape Province.



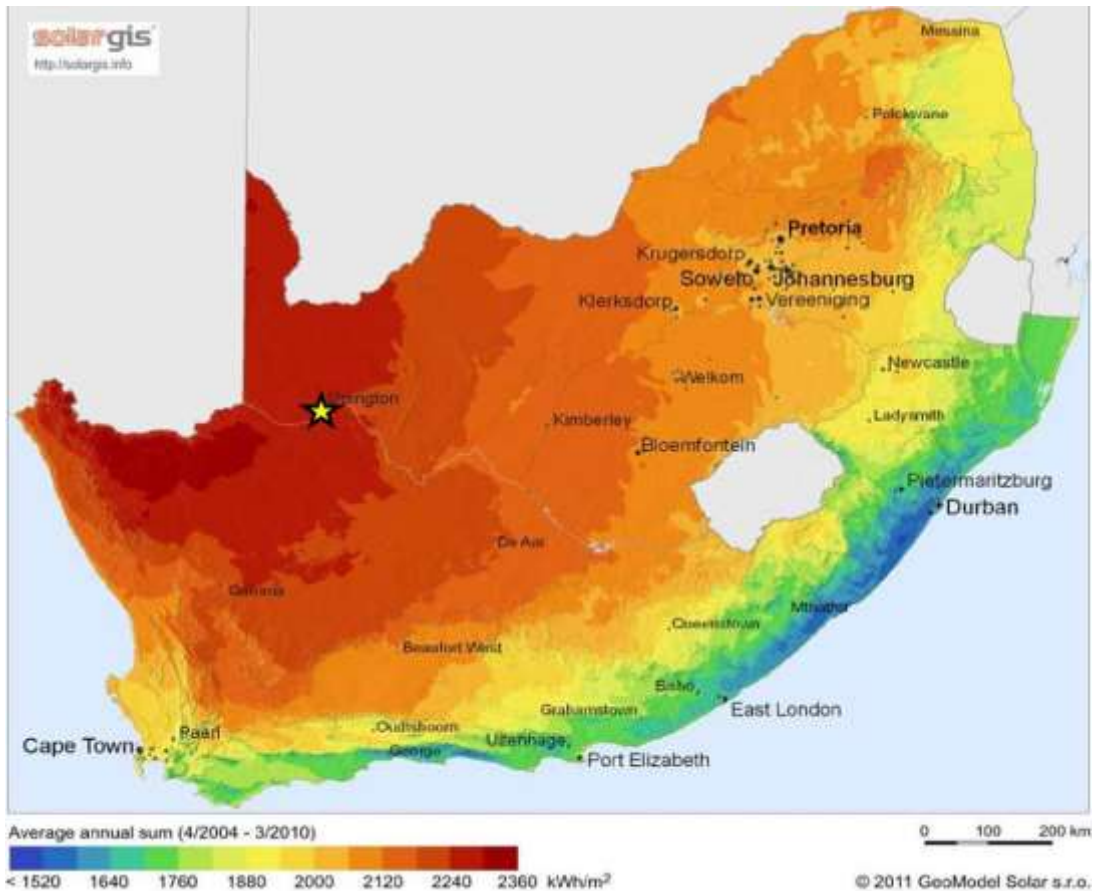
Renewable Energy Development Zones (REDZ) (CSIR 2014), Bloemsmond Facility (shown by the yellow star) falls within REDZ 7.

5. Agricultural Potential

The unfavourable climate of the Kalahari environment greatly decreases agricultural potential. The area is known to be an agricultural-hub but Portion 5 and 14 of the farm Bloemsmond 455 are located too far from the Orange River and its fertile banks to ever be considered for high intensity grazing and/or cultivation practices. The development does not encroach on land that is currently being used for grape production which is crucial for the economy of South Africa and the Upington area.

6. The Solar Irradiation

The economic viability of a solar facility is directly dependent on the annual direct solar irradiation values. The Northern Cape receives the highest average daily direct normal irradiation (DNI) in South Africa. In addition, Upington exhibits some of the best solar irradiation in South Africa, and the world. Global horizontal irradiation (GHI) for the Upington region varies between 2250 and 2300 kWh/m²/annum. The GHI for the Bloemsmond Site is in the region of approximately 2278 kWh/m²/annum. The high irradiation levels is an important factor in a highly competitive bidding environment under REIPPPP, the economic viability of a project is a critical success factor.



7. Proximity to access road for transportation of material and components

The proximity of the site to the N14 decreases the impact on secondary roads from traffic during the construction and operation phases. As 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 a key factor in determining the viability of the project, particularly taking transportation costs (direct and indirect) into consideration and the impact of this on project economics and therefore the ability to submit a competitive bid under the Department of Energy's (DoE) REIPPPP.

8. Upington airport

The Upington airport is located approximately 28km to the south-west of the Site, and therefore will not pose any threat to the aviation industry.

9. Same landowner

AEP has an established relationship with the landowner of Farm Bloemsmond Portion 5 and 14 due to developing the previous Bloemsmond 1 & 2 PV Facilities on the same land, and thus negotiating a new contract with the landowner is relatively easy. 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 an additional 100 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,

Peter Smith
Project Developer, Atlantic Renewable Energy Partners