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Savannah Environmental (Pty) Ltd
Care of Candy Mahlangu

Per email: Candy@savannahsa.com

Dear Candy

PART 2 AMENDMENT: VISUAL ASSESSMENT

Proposed Zen Wind Farm (Wind Energy Facility - WEF), Western Cape Province

1. BACKGROUND AND PURPOSE OF THE AMENDMENT

The authorised Zen Wind Farm is located approximately 10km north-west of the town of Gouda and falls within the Drakenstein Local Municipality in the Cape Winelands District Municipality, Western Cape. An Environmental Authorisation (EA) for the Zen Wind Farm and associated infrastructure was received on 3 November 2016, and included several subsequent amendments.

The Zen Wind Farm is to be constructed within the project site which comprises the following farm portions:

- Portion 1 of the Farm Bonne Esperance 83,
- Portion 2 of the Farm Bonne Esperance 83,
- Portion 9 of the Farm No. 88
- Portion 0 of the Nayoth 458

Due to the proximity to the Bergriver Wind farm and the operational Gouda Wind Farm, Acciona Energy South Africa Global (Pty) Ltd (AESAG) acquired the project from the original developers and is developing a wind farm cluster. AESAG will adopt the latest wind turbine technology available to Acciona Energy for the project. The facility layout has been designed to optimise the energy yield and considers the latest technology. The project will also utilise combined construction infrastructure (temporary facilities, laydown areas, batch plants to further reduce the overall impacts of the project and the adjacent Bergriver Wind Farm. Both the Zen and the Bergriver Wind Farm projects are designed to share infrastructure to optimise construction expenses and timeline.

In this regard, the following is proposed:

1. Retain the overall generating capacity of the wind farm at up to 147MW;
2. Reduction in the number of turbines from 27 to 17 (considered to be a positive from a visual impact assessment perspective);
3. Increase turbine capacity from 6 MW to up to 7.5 MW per turbine
4. Increase the internal roads width from 6m to ~8m
5. Optimise turbine/facility layout based on the energy yield, and revise the layout as

- required based on the revised turbine numbers and turbine specification; and
6. Optimise internal underground cabling (33kV) to enable a consolidated point of grid connection for the Zen/Bergriver cluster, and remove substation and overhead power line connection from the project description.

The proposed amendments are not listed activities and do not trigger any new listed activity. No additional properties will be affected by the amendments as the proposed amendments are within the originally authorised development footprint.

In addition to the above, the final facility layout and the EMPr for the facility must be submitted and approved prior to commencement of construction, as per the requirements of the EA.

The Zen Wind Farm project site is proposed to accommodate the following infrastructure:

- Up to 17 wind turbines at 7.5MW each with a tip height of up to 230m.
- Concrete turbine foundations and turbine hardstands;
- Internal access roads (up to 8m in width) linking wind turbines and other infrastructure on the Bergriver Wind Farm site.

The Zen Wind Farm and Bergriver Wind Farm will share the following infrastructure:

- Temporary facilities, laydown areas and batch plants
- Onsite Substation and Switching Substation
- Operation and Maintenance buildings including a gate house, security building, control centre, offices, warehouses, a workshop and visitors centre.

Below is a table for the details or dimensions of the up to 147 MW Zen Wind Farm and associated infrastructure:

| Infrastructure | Footprint and dimensions |
|---------------------------|---|
| Facility capacity | Contracted capacity of 147MW |
| Number of turbines | Up to 17 turbines |
| Turbine tip height | Up to 230m |
| Turbine foundations | Approximately 20m x 20m to a depth of 6m per turbine |
| Access and internal roads | Existing roads on farm will be used where feasible and practical. The width of the access road will be approximately 8m (this is also relevant for existing roads) however during construction access roads may be up to 10m in width. The total length of access roads is approximately 7.2 (existing & new). The access roads will be gravel. |
| Underground cabling | Underground cabling between the turbines will be installed at a depth of 1.5m to 3m. Cabling to follow internal access roads. |

2. ASSESSMENT OF THE PROPOSED AMENDMENT

Lourens Du Plessis, the visual specialist, conducted the original Visual Impact Assessment for Zen Wind through MetroGIS. Lourens du Plessis was the original specialist for the Zen Wind Farm Visual Impact Assessment (2013). The reviewer has assessed the proposed amendment to the project infrastructure and has drawn the following conclusions:

2.1. The Affected Environment

The description of the affected environment, as described in the original VIA report remains unchanged. There have been no change in land use for the proposed development site, no new developments have been constructed on or near the development site, and the land use zonation (agriculture) remains the same.

The above conclusion was verified through consultation with the project proponent and the current land owner(s).

2.2. Terms of reference for the VIA

The terms of reference for the original VIA report included:

- Determine the potential visual exposure of the proposed project infrastructure
- Determine the visual distance/observer proximity to the project infrastructure
- Identify potential sensitive visual receptors and areas of higher viewer incidence
- Determine the visual absorption capacity of the landscape
- Calculate a visual impact index to identify the magnitude of the visual impact on potentially affected areas/receptors
- Determine the significance of the potential visual impact
- Provide mitigation measures to alleviate the potential visual impacts

These activities, analyses and conclusions are still relevant in light of the proposed amendment to the project infrastructure.

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The Terms of Reference (ToR) for the specialist statement for the Application for Amendment of the EA for the Zen Wind Farm to amend the facility layout provided by the EAP includes:

- To confirm the status of the environment compared to that at the time of the original assessment. This enables the specialist to make a statement as to whether the environment has changed since the original assessment, supported by a site verification survey.
- An indication as to whether the impact rating as provided in the initial assessment remains valid; if the mitigation measures provided in the initial assessment are still applicable; or if there are any new mitigation measures which need to be included into the EA.
- An indication as to whether there are any new assessments/guidelines which are now relevant to the authorised development which were not undertaken as part of the initial assessment, must be taken into consideration and addressed in the report.
- A description and an assessment of any changes to the environment (social and biophysical) that has occurred since the initial EA was issued.
- A description and an assessment of the surrounding environment, in relation to new developments or changes in land use which might impact on the authorised project, the assessment must consider the following:
 - similar developments within a 30km radius;
 - Identified cumulative impacts, and where possible the size of the identified

impact must be quantified and indicated, i.e., hectares of cumulatively transformed land.

- Measures to ensure avoidance, management and mitigation of impacts associated with such proposed changes, and any changes to the Environmental Management Programme (EMPr).

2.3. Impact rating assessment and impact mitigation measures

A reduction in the turbine numbers of the Zen Wind Farm from 46 turbines to 27 turbines was approved through an amendment in 2020. This amendment is a further reduction in turbine number from 27 turbine to 17 turbines. With this current change in facility layout, no turbines are planned east of the R44 road.

This proposed amendment to the project infrastructure is not expected to significantly alter the influence of the WEF on *areas of higher viewer incidence* (observers traveling along the roads within the region) or *potential sensitive visual receptors* (residents of homesteads in closer proximity to the facility). Turbines will still be visible, albeit that there will be fewer turbines clustered to the west of the R44 road. The placement of the all of the Zen Wind Farm turbines west of the R44 arterial road is preferred from a visual perspective.

The proposed amendment to the project infrastructure (turbine locations as well as the removal of the on-site facility substation) is consequently not expected to influence the anticipated visual impact, as stated in the original VIA report (i.e. the visual impact is expected to occur regardless of the amendment). This statement relates specifically to the assessment of the visual impact within a 5km radius of the wind turbine structures (potentially *high* significance), but also generally apply to potentially *moderate* to *low* visual impacts at distances of up to 30km from the structures.

From a visual perspective, the proposed amendment will therefore require no (zero) changes to the significance rating within the original visual impact assessment report that was used to inform the approved EIA. In addition to this, no new mitigation measures are required. The reduction of the number of wind turbines is however considered to be a positive from a visual impact mitigation perspective.

There are no new assessment guidelines which are now relevant to the authorised development which were not undertaken as part of the initial visual impact assessment. Additional to this, and as stated above, there have been no changes to the environment of the proposed development site or the surrounding environment.

2.4. Cumulative visual impact

It is worth noting that the proposed Zen Wind Farm is located immediately north-west of the Gouda WEF (an existing visual disturbance). The close proximity of these two WEFs to each other is considered to consolidate and concentrate the wind energy generation infrastructure within this locality, as opposed to scattering it throughout the region (i.e. if they were placed beyond a 5km radius of each other). The placement of the all of the Zen Wind Farm turbines west of the R44 arterial road is also preferred and the cumulative visual impact is deemed to be of an acceptable level.

Notwithstanding this statement, this landscape (based on the scenic nature of the receiving environment, the presence of declared scenic mountain ranges, proclaimed protected areas,

and the high number of potentially affected sensitive visual receptors located within the study area), has fast approached its capacity or threshold to accommodate wind energy infrastructure. This statement considers the wind turbines from the existing Gouda WEF, as well as the potential future wind turbine structures associated with the Zen Wind Farm and the Bergriver Wind Farm. The construction of any additional WEFs may exacerbate the potential cumulative visual impact and adversely transform the visual quality and landscape character of the area for the operational life spans of the WEFs.

3. CONCLUSION AND RECOMMENDATIONS

The proposed amendment will require no changes to the impact significance ratings as stated within the original VIA report which was used to inform the approved EIA. In addition to this, no new mitigation measures are required.

The Specialist confirms the acceptability of the amended facility layout (for submission to and approval by DFFE), and that no additions/changes to the Environmental Management Programme (EMPr) are required.

It is suggested that the amendment to the project infrastructure be supported, subject to the conditions and recommendations as stipulated in the original EA, and according to the Environmental Management Programme (EMPr) and suggested mitigation measures, as provided in the original VIA report.

4. REFERENCES

MetroGIS (Pty) Ltd, 2012 (Amended May 2013). Proposed Zen Wind Energy Facility. *Western Cape Province - Visual Impact Assessment Report*.

Savannah Environmental (Pty) Ltd, 2015. *Proposed Zen Wind Energy Facility & Associated Infrastructure on a site near Saron, Western Cape (Amended Final EIA Report)*.

Feel free to contact me at any time, should you have any queries.

Kind regards,



Lourens du Plessis (PrGISc)