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Division: Environmental Consulting
Your Reference:
Our Reference: 16580
Date: 19 November 2020

ATTENTION: Stephanie-Anne Barnardt

Dear Stephanie,

PROPOSED CONSTRUCTION OF THE OYA 132KV POWER LINE NEAR MATJIESFONTEIN, WESTERN AND NORTHERN CAPE PROVINCES: VISUAL IMPACT ASSESSMENT

DEFF REFERENCE: TO BE ALLOCATED

1 INTRODUCTION

Oya Energy (Pty) Ltd, (hereafter referred to as "Oya") is proposing to construct a 132 kilovolt (kV) overhead power line and 33/132kV substations to support the proposed renewable energy facilities owned by the applicant near Matjiesfontein in the Western and Northern Cape Provinces. The proposed overhead power line and substation project is presently the subject of a Basic Assessment (BA) process in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA) (as amended) and Appendix 1 of the EIA Regulations, 2014 promulgated in Government Gazette 40772 and GN R326, R327, R325 and R324 on 7 April 2017.

As part of this process, a Visual Impact Assessment (VIA) was undertaken by SiVEST in accordance with Appendix 6 of the National Environmental Management Act (Act 107 of 1998, as amended). The findings of this assessment were presented in the Visual Impact Assessment report, dated 2 November 2020 (Schwartz, 2020).

2 ASSESSMENT METHODOLOGY

The VIA is based on a desktop-level assessment supported by field-based observation. Given the nature of the receiving environment and the height of the various components of the proposed development, the study area for the VIA encompassed a zone of 5 km from the outer boundary of the combined power line assessment corridors and substation sites.

2.1 Physical landscape characteristics

Physical landscape characteristics such as topography, vegetation and land use are important factors influencing the visual character and visual sensitivity of the study area. Baseline information about the physical characteristics of the study area was initially sourced from spatial databases provided by NGI, the South African National Biodiversity Institute (SANBI) and the South African National Land Cover Dataset (Geoterrimage – 2018). The characteristics identified via desktop analysis were later verified during the site visits.

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2.2 Identification of sensitive receptors

Visual receptor locations and routes that are sensitive and/or potentially sensitive to the visual intrusion of the proposed development were assessed in order to determine the impact of the proposed development on each of the identified receptor locations.

2.3 Fieldwork and photographic review

Given that the proposed grid connection infrastructure is located within project areas already assessed for several renewable energy VIAs, it was not considered necessary to undertake any additional fieldwork. Fieldwork undertaken by SiVEST for VIAs for the Kudusberg WEF (14/12/16/3/3/1/1976/AM1), Tooverberg WEF (14/12/16/3/3/1/1948/AM1) and grid connection infrastructure (14/12/16/3/3/1/1983/AM1) and Oya Energy Facility (14/12/16/3/3/2/2009) has therefore been used to inform this assessment. The fieldwork involved three separate site visits conducted in July 2018, August 2018 and July 2020. The purpose of these site visits was to:

- verify the landscape characteristics identified via desktop means;
- conduct a photographic survey of the study area;
- verify, where possible, the sensitivity of visual receptor locations identified via desktop means;
- eliminate receptor locations that are unlikely to be influenced by the proposed development;
- identify any additional visually sensitive receptor locations within the study area; and
- inform the impact rating assessment of visually sensitive receptor locations (where possible).

2.4 Visual / Landscape Sensitivity

Areas of potential visual sensitivity along the power line assessment corridors and substation sites were demarcated, these being areas where the establishment of a power line or other associated infrastructure would result in the greatest probability of visual impacts on potentially sensitive visual receptors. This exercise essentially involved the use of GIS-based visibility analysis to determine which route alternatives would be visible to the highest numbers of receptors in the study area.

In addition, the National Environmental Screening Tool was examined to determine any relative landscape sensitivity in respect of the proposed development.

2.5 Impact Assessment

A rating matrix was used to objectively evaluate the significance of the visual impacts associated with the proposed development (including all associated infrastructure), both before and after implementing mitigation measures. Mitigation measures were identified (where possible) to minimise the visual impact of the proposed development. The rating matrix made use of several different factors including geographical extent, probability, reversibility, irreplaceable loss of resources, duration and intensity, in order to assign a level of significance to the visual impact of the project.

A separate rating matrix was used to assess the visual impact of the proposed development (including all associated infrastructure) on each visual receptor location (both sensitive and potentially sensitive), as identified. This matrix is based on three (3) parameters, namely the distance of an identified visual receptor from the proposed development, the presence of screening factors and the degree to which the proposed development would contrast with the surrounding environment.

2.6 Comparative Assessment of Alternatives

Five (5) power line corridor route alternatives were assessed for the section of the proposed overhead power line which connects the Oya Energy Facility on-site substation to the Kappa substation (i.e. Oya to Kappa). Each route alternative was assessed in terms of the degree of visual impact and a preference rating was determined based on the following factors:

- The location of each proposed power line corridor route alignment alternative in relation to areas of high elevation, especially ridges, koppies or hills;
- The location of each proposed power line corridor route alternative in relation to sensitive visual receptor locations; and
- The location of each proposed power line corridor route alternative in relation to areas of natural vegetation (clearing site for the development worsens the visibility)

3 FINDINGS OF THE VIA

The study area has a largely natural, untransformed visual character with some elements of rural / pastoral infrastructure and as such, the proposed power line and substation development would alter the visual character and contrast significantly with the typical land use and/or pattern and form of human elements present across the broader study area. The level of contrast will however be reduced by the presence of the Perdekraal East WEF, associated power line infrastructure, Kappa substation and existing high voltage power lines located in the south-western sector of the study area.

The VIA determined that much of the study area represents a typical Karoo cultural landscape. This is important in the context of potential visual impacts associated with the development of a power line and associated infrastructure as introducing this type of development could be considered to be a degrading factor in the context of the natural Karoo character of the study area. In this instance visual impacts on the cultural landscape would be reduced by the fact that the area is relatively remote and there are no significant tourism enterprises attracting visitors into the study area. In addition, the nearest major scenic routes (N1 and R355) are some considerable distance away and are not expected to experience any visual impacts from the proposed development. A detailed assessment of the potential impacts of the proposed power line and substation development on the cultural landscape was included in the Heritage Impact Assessment (HIA) undertaken by CTS Heritage in respect of the proposed project. Although this study identified cultural landscape features of significance, it was concluded that the proposed development is unlikely to have a negative impact on significant heritage resources situated within the corridor for the proposed Oya power line provided that the proposed mitigation measures including buffer areas and 'no-go' areas are implemented.

A broad-scale assessment of landscape sensitivity, based on the physical characteristics of the study area, economic activities and land use that predominates, determined that the area would have a low visual sensitivity. However, an important factor contributing to the visual sensitivity of an area is the presence, or absence of visual receptors that would potentially be impacted by a proposed development.

No formal protected areas were identified in the study area and relatively few sensitive or potentially sensitive receptors were found to be present within the study area (less than 0.3 receptors per square kilometre). Preliminary desktop assessment of the study area identified twenty-three (23) potentially sensitive visual receptor locations within the study area, most of which appear to be existing farmsteads. These farmsteads are regarded as potentially sensitive visual receptors as they are located within a mostly rural setting and the proposed development will likely alter natural vistas experienced from these locations, although the residents' sentiments toward the proposed development are unknown. Five (5) of these potentially sensitive receptor locations were however found to be outside the viewshed of the proposed development and thus are not expected to experience any visual impacts as a result of the proposed development. Two (2) receptors are considered to be **sensitive** receptors as they are linked to leisure/nature-based tourism activities in the area, although both of these properties are associated with adjacent Wind Energy Facility projects and as such the land owners have a vested interest in the proposed development and associated grid connection infrastructure. It was also noted that thirteen of the fifteen **potentially sensitive** receptors are located on farms which either form part of the power line development project or are located within the development sites for other renewable energy projects and as such the owners / occupants are not expected to perceive the proposed power line and substations in a negative light.

In assessing the potential visual sensitivity of roads in the study area, it was found that the main thoroughfares (namely the R356 Main Road and the DR1475 District Road) do not form part of any recognised tourism routes and are primarily used as local access roads. Other roads in the area are mainly gravel farm access roads. As such, roads in the area are not considered to be visually sensitive.

The identification of areas of visual sensitivity affecting the power line assessment corridors and substation sites involved a visibility analysis which showed that elements of the grid connection infrastructure as proposed would be visible from all identified potentially sensitive receptors. As such, no areas along the route alignment alternatives were found to be significantly more sensitive than any other areas. Accordingly, areas visible to more than 33% of the receptors were rated as areas of potentially 'high visual sensitivity'. However, as the study area as a whole is rated as having a low visual sensitivity, the sensitivity rating would be reduced to "Medium-High". Hence these areas are not considered to be "no go areas", but rather should be viewed as zones where development would be least preferred. This factor was taken into account in the comparative assessment of route alternatives.

In assessing visual sensitivity, the Landscape Theme of the National Environmental Screening Tool was used to determine the relative landscape sensitivity (including natural features such as ridges and valleys) for the development of grid connection infrastructure. The tool does not however identify any landscape sensitivities in respect of the proposed power line or substation.

It was however noted in the VIA that the visual prominence associated with the tall structures of power line towers and substations would be exacerbated if these structures are located on a ridge top or high lying plateaus. This factor was taken into account in the comparative assessment of alternatives.

The overall impact rating conducted for the proposed power line revealed that the proposed development is expected to have a negative low visual impact rating during construction, operation and decommissioning phases with a number of mitigation measures available to prevent any additional visual impacts.

It was also noted in the VIA that the study area for the proposed power line is located within the Renewable Energy Development Zone 2 (REDZ 2) known as Komsberg, and also within a Strategic Transmission Corridor and thus the relevant authorities support the concentration of renewable energy developments and associated power line infrastructure in this area.

4 CONCLUSION

The VIA concluded that the visual impacts associated with the proposed Oya 132kV power line and associated substation are of moderate significance. It is SiVEST's opinion that visual impacts affecting the identified receptors and the natural landscape as a result of the construction, operation and decommissioning phases of the project can be mitigated to acceptable levels provided the mitigation measures recommended in the VIA report dated 2 November 2020 are implemented.

Yours sincerely,

A handwritten signature in black ink that reads "K Schwartz".

Kerry Schwartz

Visual Specialist

SiVEST Environmental