

Executive Summary

Introduction

Sato Energy Holdings (Pty) Ltd (Sato) proposes to develop a solar energy facility using photovoltaic (PV) panels near Aggeneys in the Northern Cape. A full Environmental Impact Assessment (EIA) is required to be undertaken as the development is a listed activity specified on the Government Notice R545 of the National Environmental Management Act (NEMA) Act No 107 of 1998 as amended in 2010. The Department of Environmental Affairs (DEA) is the competent authority, and Northern Cape Department of Environmental Affairs and Nature Conservation (NCDENC) is the commenting authority for the project. Also contained within this document is the Draft Basic Assessment Report (BAR) required in terms of the National Environmental Management: Waste Act, Act No 59 of 2008 for associated sanitation facilities.

SRK Consulting (Pty) Ltd (SRK) has been appointed by Sato as the environmental assessment practitioner (EAP) to carry out the requisite EIA in terms of NEMA. The EIA process involves developing draft and final scoping reports, as well as draft and final environmental impact reports (EIRs). A key component in the finalisation of the scoping and EIR reports is public participation which runs throughout the EIA process. This project is currently at the stage of release of the DEIR.

In December 2011, DEA approved the splitting the project into seven EIAs based on Department of Energy (DoE) requirements for a maximum of 75MW per project, and the assessment of all seven projects units are presented in the DEIR. This consolidated impact assessment covers DEA reference numbers for the seven EIAs are as follows: 12/12/20/2334/1 through to 12/12/20/2334/7.

Project description

The proposed Sato PV project falls under the Khai Ma Local Municipality which in turn falls under the jurisdiction of the Namakwa District Municipality of the Northern Cape Province. The project is planned to be located on the farm Zuurwater which is located adjacent to the N14 between Springbok and Pofadder, approximately 10km west of Aggeneys. The project encompasses a solar energy facility using PV panels covering an area of between 800 and 900ha, with a generation capacity of about 500MW. Each of the six 75 MW units will have 15 adjacent sites, each of which will produce 15 MW (thus totalling 75MW for each unit). The seventh unit will have 3.3 adjacent sites, each of which will generate 15 MW (totalling 50 for the unit) (see Figure 0-1).

Construction activities will include levelling, access by construction vehicles, development of trenches for the placement of cables underground and the development of concrete foundations for the placement of PV panels. Levelling of the site is anticipated to be minimal since the proposed development site is primarily flat. It is anticipated existing farm roads will be used during construction and operation phases of the project. It is anticipated that 130 people will be employed during the construction phase.

Operational activities will be relatively minimal, predominantly involving maintenance and cleaning of PV panels. The operational and maintenance activities will be on-going until decommissioning from 25 to 35 years from a base year of 2012. It is anticipated that

labour for the operational phase will start from Year 2 of the phase (i.e. 2013) with 30 operational staff being employed.

Following the project lifespan of 25-35 years, all infrastructure will be disposed of in line with the relevant legislation. Glass, aluminum, copper and silicon components, forming the bulk of the material, will be recycled. Access to the site through all project phases will be via the N14.

Sato plans to provide accommodation for staff on the project site, although off-site accommodation will also be considered should this be found to be feasible. The primary requirement for water for the development will be to supply domestic needs for on-site staff. In order to minimise water use, it is planned that cleaning of panels will be carried out using compressed air. A further means of reducing water consumption is the use of dry sanitation which will be implemented if found to be feasible. A package sewage treatment plant is being planned (the subject of a Water Licence Application and basic assessment forming a component of this DEIR). Water consumption is expected to peak in the second year from commencement of construction at 11 8632m³/a. Thereafter water consumption will decline gradually to year 7 when the expected demand will be 10 038m³/a. From year 8 to 29 (following completion of construction), demand is expected to be about 2737m³/a. It is planned that solid waste disposal will take place at an existing licenced facility.

Overview of the baseline environment

The proposed development site is located on flat topography, surrounded by inselbergs which rise steeply out of the plains and dune intrusions which are located in the north of the project site. The arid, semi-desert conditions are characterised by very low rainfall which generally falls in summer. Temperatures are generally hot in summer, with winters being characterised by warm days but particularly cold night-time temperatures. This region of the Northern Cape is the most favourable part of the country for a PV development given the high number of sunny days experienced in the area.

The plains are dominated by dry grasslands classified as the Bushmanland Sandy Grassland that forms part of an area of relatively high conservation importance known as the 'Bushmanland Inselberg priority area'. Several plant communities are present within the farm boundary, with over 70 % of communities being sensitive to environmental changes and are therefore of high conservation priority. The inselbergs are particularly important refugia for plants and animals and act as steppingstones for rock-loving species migrating east-west across the sand-covered plains of Bushmanland. Numerous faunal species of high conservation importance are also found in the area.

There are two distinct hydrological soil groups; sands generally found on the plains have low stormflow potential combined with high infiltration rates and soils on the inselbergs displaying high stormflow potential and low permeability. The predominant land use within the Northern Cape, as well as within the greater Namakwa District is agriculture in the form of relatively low potential grazing. Water is extremely scarce within this main quaternary sub-catchment (D82C), and the localised drainage lines associated with the Skelmberg rapidly dissipate and infiltrate the ground on reaching the flat open sandy soils. A key feature of the area is the lack of an outflow point, indicating that the area is an endoreic pan.

The N14 to be used for all access to the site falls under the auspices of SANRAL and is in excellent condition. The road further has good visibility at the points of access to the southern

and northern sides of the farm. Otherwise the area has little development; the Khai Ma Local Municipality (KMLM) is one of the least populated local municipalities in the Namakwa District. Most employed people in KMLM have some secondary education or primary education with 15% of the employed having Grade 12. The population in KMLM rose from 9 348 persons in 1996 to 11 344 in 2001, which counters the trend in other municipalities in the area.

Location alternatives

The original alignment of the development site location alternative was modified based on environmental sensitivities identified by the specialist ecology team as well as the surface hydrological specialist. Concerns regarding loss of key grazing areas by the farmer on Zuurwater further informed the realignment of the site. This alignment was presented in the scoping reports. Following input from SANRAL during scoping, the alignment was further modified and is presented in Figure 0-1 below. For further details refer to the DEIR.

Public participation

A public participation process has formed part of the EIA process and has included the notification of interested and affected parties (IAPs) through newspaper advertisements, existing databases, placement of public notices, public meetings and letters/ e-mail communications. Requisite regulatory timeframes have been complied with and stakeholders have been invited to review public documents and submit their written comment. Affected communities comprise those of Pella, Aggenys and Pofadder. Key authorities have also been kept informed of the project.

Key impact identified for specialist investigation and assessment

A number of specialist studies were undertaken to investigate and assess the significance of the following potential impacts arising from the proposed development:

- Ecological impacts (including fauna and flora, and wetland/pan function)
- Economic impacts (including disruption of infrastructure, economic development and employment)
- Social impacts (including public safety, road safety hazards, occupational health and safety and visual influences)
- Soils and land capability impacts (including sterilization of soils and minerals, loss of land capability and agricultural potential, as well as erosion)
- Water quality and quantity impacts (including pollution of water resources and flooding potential)
- Air quality impacts (including dust generation and benefits of reduced reliance on coal)
- Heritage impacts (including potential effects archaeological and palaeontological resources).

The assessment was conducted using SRK's standard methodology for assessing and mitigating impacts. No fatal flaws were identified and management measures were recommended for the mitigation and enhancement of negative and positive impacts. The detailed assessment findings are presented in the DEIR, as well as the environmental management plan.

Summary of opinion on authorisation

The proposed site (presented in Figure 0-1) is preferred over the alternative site based on overall negative impacts being lower. The only exception is that noise impacts on the resident farming family are slightly higher for the proposed site. The layout of the proposed site addresses key ecological, hydrological and agricultural impacts.

Units 1 to 7 of the proposed site in general display similar in relation to each other. With mitigation, the significance ratings of these impacts are estimated to be 'low-medium'. It is believed by the EAP that the mitigation measures proposed will adequately address potential impacts. The units will be developed in a phased manner (one unit a year over a total of seven years) which will minimize the extent of cumulative impacts during preconstruction and construction.

Economic and social negative impacts, assessed to have a 'low-medium' significance rating, will arise from decommissioning of the PV plant. These impacts can, however, be effectively mitigated provided that there is adequate planning and collaborative effort with other economic role-players. Water availability impacts with 'low-medium' impact significance will require active management including stringent water conservation strategies and effective communication with other water users.

It is anticipated that it will be possible to successfully mitigate impacts associated with the development through the management measures specified in the EMP contained in the DEIR. Further, the development will, on balance, have a positive impact on the environment, given that it will contribute to reduced reliance on coal for power generation and will contribute to reducing South Africa's greenhouse gas emissions. It will also assist with reducing reliance on mining of coal for power generation, a major contributor to water quality degradation in the Highveld and Mpumalanga. The PV plant will also bring much-needed economic development and sustainable land use to a region of the country which is severely challenged by extremely low rainfall, high unemployment and limited development opportunities.

The no-go option is not preferred as it would mean that the proposed development to install the PV facility would not get implemented and the benefits arising from the project would not transpire.