

## Environmental and Social Data Sheet

### Overview

Project Name:	RADIANT AND ELDOSOL SOLAR PV POWER PLANTS
Project Number:	2015-0682
Country:	Kenya
Project Description:	Construction of 2 x 40MW net output solar photovoltaic (PV) power plants near Eldoret, Western Kenya. The projects are being developed as Independent Power Producers (IPPs) under the feed-in tariff regime in Kenya. The two projects will have shared facilities and services and will supply electricity to the national grid.
EIA required:	no
Project included in Carbon Footprint Exercise <sup>1</sup> :	yes

### Environmental and Social Assessment

#### Environmental Assessment

##### Environmental assessment and management procedures

The project consists of over 300,000 polycrystalline silicon PV modules mounted on a single axis (north-south) tracking system. Direct Current (DC) electricity generated by the modules is inverted to Alternating Current (AC) electricity by means of approximately 70 centrally located inverters and is transformed to 220 kV in two steps by means of step-up transformers located on the project site. The power is evacuated to the national grid via a dedicated 800 m long 220 kV high voltage power line which is interconnected to the existing 220 kV transmission line passing nearby the project site. The total area of the project site is approximately 240 ha, of which the solar panels cover 105 ha (44% of the total area). If the project were located within the EU it would fall under Annex II of the EIA-Directive (2014/52/EU), requiring the competent authorities to determine whether an EIA is required. Under Kenyan national legislation a similar screening process is required. Environmental and social impact assessment (ESIA) project reports have been prepared for each of the two PV plants included in the project scope and have been approved by the competent authority, NEMA (National Environmental Management Authority), which concluded that there is no need for a further detailed ESIA study in either case. The ESIA project reports cover the solar PV plants and the 220 kV interconnection, and include: an executive summary, an introduction, the legislative and institutional framework, a project description, environmental and social baseline information, an analysis of project alternatives, a description of the public consultation procedures undertaken, impact identification and analysis, proposed mitigating measures, and an environmental and social management and monitoring plan. For easy accessible

<sup>1</sup> Only projects that meet the scope of the Pilot Exercise, as defined in the EIB draft Carbon Footprint Methodologies, are included, provided estimated emissions exceed the methodology thresholds: above 100,000 tons CO<sub>2</sub>e/year absolute (gross) or 20,000 tons CO<sub>2</sub>e/year relative (net) – both increases and savings.

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communication with stakeholders, flyers summarising the ESIA process have been distributed in English and the local language (Nandi). The ESIA Project Reports are considered to be of good quality and in line with international best practice, except for the omission of a Cumulative Impact Analysis, which was conducted by the promoter as a separate exercise to meet EIB and FMO/IFC standards but was not required by NEMA.

As part of the ESIA project reports, Environmental and Social Monitoring and Management Plans (ESMMPs) have been prepared for the construction, operational and decommissioning phases of the two plants. The ESMMPs require the preparation of a Construction Environmental Management Plan, an Operation Environmental, Health and Safety Management Plan, and several topic-specific management plans, including: a Waste Management Plan; a Labour and Employment Plan; an Emergency Response Plan; a Water Management Plan; a Traffic Management Plan; a Health and Safety Management Plan; and a Decommissioning Plan. A review of the ESIA, associated ESMMP and other available management plans against the IFC Performance Standards (PS) and the EIB Environmental and Social Practices and Procedures has been conducted. Required follow up actions have been summarised in an Environmental & Social Action Plan (ESAP), differentiating between actions to be made: a) before first disbursement; and b) before the start of construction.

#### Environmental impacts and mitigating measures

Site Management. Preparation of the site for the establishment of PV arrays, underground cables, access roads, temporary laydown areas and buildings will require clearance of some existing vegetation and timber, site levelling and soil compaction, which will affect water run-off and surface drainage. The contractor will be required to prepare a drainage plan that takes into account the impact on neighbours and existing drainage infrastructure. Vegetation will only be cleared where necessary for the project development and temporarily-cleared areas will be replanted with locally-occurring species.

Traffic management. During the construction phase, which is expected to last for up to 18 months, there will be increased traffic in the area as trucks will be required to transport materials and equipment to the site. The increase in traffic is likely to create noise, dust and safety impacts for other road users and for people living and working in close proximity to the selected transport routes. The impacts will be kept to a minimum by developing a Traffic Management Plan covering vehicle safety, speed limits, driver and passenger behaviour, operating hours, accident reporting and investigation. The traffic impact during operation is expected to be reduced to a minimal level, mainly associated with light vehicles employed by operating and maintenance staff and infrequent deliveries of spare parts.

Wildlife. The project is located on a gently undulating plateau classified as a medium-potential agro-ecological zone, which has in the past been used exclusively for agricultural production. There are no protected nature conservation zones on or adjacent to the project site. Noise and disturbance caused by construction activities will have a potential negative effect on avifauna on the site, which includes the Grey Crowned Crane, an endangered species. The extent of the habitat disturbed is small, however, in comparison with the surrounding available habitat. The collection, hunting or harvesting of eggs from any avifauna on the site will be strictly forbidden throughout all phases of the project. Operational activities could result in increased mortality of large terrestrial species and raptors, as well as overflying wetland birds, from collisions with the transmission line or by electrocution on new power infrastructure. The risk is assessed as minor; however, any such events are to be recorded so that further mitigation and avoidance measures can be implemented if needed. The project site is currently largely unused and has attracted a significant number of wild animals, including antelopes and gazelles. The promoter will liaise with Kenya Wildlife Service (KWS) to relocate wildlife, as appropriate, to suitable safe sanctuaries before construction commences.

Visual impact. The main visual effect of the project will be the introduction of a new element of a technical nature in a predominantly rural and undisturbed landscape, although the impact is limited by the relatively flat topography. Buildings will be kept low and natural vegetation will



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be re-established which will create a visual barrier from outside the site. Perimeter and security lighting will be shielded so that no light falls outside of the area needing to be lit.

Cumulative impact. Given the close proximity of the two solar PV plants included in the project to a third plant of a similar size on the eastern boundary, a cumulative impact assessment has been undertaken. This concluded that the potential negative impacts are largely related to the construction phase: increased traffic; additional workforce including transport personnel; and possible discrepancies in the employment and procurement practices. The main recommendation is that the respective developers work together to develop: a) measures related to traffic and transport to avoid congestion and minimise accidents; b) employment and procurement procedures; and c) their approach to worker-community interactions.

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## **EIB Carbon Footprint Exercise**

The project substitutes for alternative generation from a combination of existing power plants and new diesel generators and geothermal power plants. Estimated emissions savings are of the order of 120 kt of CO<sub>2</sub> equivalent per year. For the annual accounting purposes of the EIB Carbon Footprint, the project emissions will be registered on a pro rata basis according to the EIB lending amount signed in that year, as a proportion of project cost.

### **Social Assessment**

Land acquisition. The two solar plants are located on privately-owned land which was previously used for agricultural purposes, including large-scale cultivation of maize and wheat, livestock rearing and charcoal production. The land is securely fenced and the local community does not use it or walk across it. The land transfer was conducted in a consenting manner. No houses are present at the project site and no one was living within the boundaries of the site. The transmission line connecting the plants to the national grid will require an 800m long 40m wide right-of-way to be established on land owned by members of the local community; no resettlement of the local population is envisaged, however, some economic impact is likely to occur, particularly during construction. The land within the way-leave will continue to be available for agricultural use, subject to some restrictions such as limits on the height of vegetation and a ban on construction of buildings. Compensation will be provided to existing landowners at a level that exceeds the requirements under national legislation in order to obtain the consent of those concerned. The affected land has no significant sites of archaeological or cultural importance. No indigenous people reside in or around the Project area.

Labour standards. The project will be required to comply with the legal and regulatory requirements of Kenyan Labour Law, which is in line with international labour standards. Kenya has ratified seven of the eight core ILO conventions<sup>2</sup>. In order to ensure that the project is implemented in accordance with these standards, the EPC contractor will be required to adhere to a Labour and Employment Plan and Worker Grievance Mechanism that will also be passed on to any sub-contractors. The plan will ensure compliance with the non-discrimination and equal opportunity principles as stated in the Lenders' standards (including the absence of child and forced labour). In addition, the plan will cover documented information to be made available for workers regarding their rights, applicable collective agreements, working conditions, terms of employment and other rights and benefits.

Workforce health and safety. A Health and Safety Plan outlining all significant risks and a strategy for their management will be developed and implemented by the EPC Contractor. This will include an HIV/AIDS policy and will require appropriate documentary information to be made available to all workers. The accommodation needs of non-local workers needs to be confirmed; either a workers' camp will be established or accommodation will be rented in the vicinity of the site. In the event of a workers' camp on site an update of the ESIA and approval by NEMA will be required. Some interaction is expected between the workers and surrounding community; it is planned to prepare an induction program for the construction workers including a Code of Conduct to limit social disturbance as well as to establish a grievance procedure for the local community.

Employment. The project is expected to generate a significant demand for un-skilled labour during construction, which is likely to benefit the local community, although few jobs will be maintained during the operating phase of the project. A procedure for unskilled local labour recruitment by the EPC contractor will be established and disseminated in the neighbourhood.

## **Public Consultation and Stakeholder Engagement**

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<sup>2</sup> The remaining convention concerns the "Freedom of Association and Protection of the Right to Organise"

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The ESIA project reports were not required to undergo a public hearing; however, they were made available to the public at the county office. A Stakeholder Engagement Plan (SEP) has been prepared to meet both Kenyan legal requirements for public participation in relation to preparation of the ESIA Project Report and international best practice for stakeholder engagement as outlined in the IFC Performance Standards. The SEP outlines the plan for engaging stakeholders as part of the ESIA process as well as the grievance mechanism that will be implemented by the Project going forward. A total of five meetings were held during the scoping and preparation of the reports. Over 400 individuals were consulted and their comments and concerns were recorded and incorporated into the ESIA project reports. The key concerns and questions raised focused on the possible health impacts of solar PV panels, employment opportunities and community development initiatives, including requests for investment in local infrastructure (roads and water), educational and health facilities. The promoter has not yet defined its Corporate Social Responsibility Programme, however, it is planned to establish this prior to the start of construction. Meetings were held in the stakeholders' choice of language and an information brochure was distributed, also translated into the local language.

### **Other Environmental and Social Aspects**

The promoter will establish a Health, Safety and Environmental (HSE) management team to ensure the proper implementation of the Construction ESMMP, including an HSE Manager who will work closely with the HSE team of the EPC contractor. The monitoring of E&S aspects during construction, including the responsibilities of the EPC Contractor, will be carried out by a third party expert consultant hired by the promoter. Weekly, monthly and quarterly (for Lenders) monitoring reports will be prepared.

### **Conclusions and Recommendations**

The Bank's financing is subject to compliance with the Environmental and Social Action Plan, to the satisfaction of the Lenders' Technical Adviser and the Bank.

In conclusion, taking into account: the environmental and social impacts of the project, the Environmental and Social Management and Monitoring plans (ESMMPs), the Environmental and Social Action Plan (ESAP), the capability of the promoter to implement the above plans and the residual impacts after completion of the proposed mitigating measures; and recognising the positive impacts generated by the project in reducing emissions from alternative generation and by contributing to employment opportunities and economic development in the local region, the project is considered to be acceptable to the Bank from an environmental and social perspective.

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