

Non-Technical Summary (NTS): Kesses 1 Solar Project, Kenya

Project description

The Kesses 1 Solar Project is developed by Alten Kenya Solarfarms BV. The solar power plant will be built in the Kesses Division of Uasin Gishu County about 15 km from the main Eldoret-Nakuru Highway and 20 km from Eldoret Town. The land is approximately 630 acres in area, but the project will utilize only 371 acres (150 ha) representing 59% of the entire land area leaving the remaining 41% for continued agricultural activities.

The project will include the installation and operation of solar panels, also known as photovoltaic (PV) panels, with a projected output of 40 megawatts (MW). The panels will be erected in rows. The collective term for a series of PV panels in a row is a PV array. The solar plant will use a single axis tracking system, i.e., PV panels are fixed to mountings which track the sun's movements. The electricity generated by the power plant will feed into the national grid network through a 220 kV transmission line owned by the Kenya Power and Lighting Company (KPLC) that passes through the project site.

The area for the solar power plant was chosen for the following reasons:

- Good solar resources, i.e., as Kenya is located on the equator and extends four degrees on either side, it receives a considerable amount of solar radiation.
- Good communication infrastructure.
- Adequate orientation without environmental constraints.
- Absence of trees or any kind of buildings that could produce shadows, which would in turn decrease the performance ratio of the PV modules

Geotechnical studies have been carried out at the project site to confirm the suitability of the soil for the construction of the power plant. A few recommendations have been made based on results of laboratory, field tests and the consultants' previous experience with similar soils and geological conditions. Hydrological and hydraulic show that the site has a low risk of flooding though some mitigation measures have been proposed and will be considered by the Engineering, Procurement, and Construction (EPC) contractor.

An Environmental and Social Impact Assessment (ESIA) in line with Kenyan legislation was finalised in June 2014. A second ESIA incorporating the requirements of the Performance Standards (PS) of the International Finance Corporation (IFC) was finalised in September 2014.

Environmental and social categorization

The Kesses 1 Solar Project is classified as a Category B project. Being classified in Category B, the project is expected to have few potential environmental and social impacts, the impacts are largely reversible, and site-specific. Appropriate mitigation measures have been developed and are included in the project's Environmental and Social Management Plan (ESMP).

Applicable standards

The project's ESIA and environmental and social management instruments have been prepared in line with the relevant Kenyan environmental legislation, the IFC Performance Standards, and the Environmental, Health, and Safety (EHS) Guidelines of the World Bank Group. The project is expected to have impacts which will trigger the following IFC Performance Standards:

- PS 1: Assessment and Management of Environmental and Social Risks and Impacts
- PS 2: Labour and Working Conditions
- PS 3: Resource Efficiency and Pollution Prevention
- PS 4: Community Health, Safety, and Security

Non-Technical Summary (NTS): Kesses 1 Solar Project, Kenya

- PS 5: Land Acquisition and Involuntary Resettlement
- PS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources

PS 7: Indigenous Peoples will not be triggered as no indigenous people reside in or around the project area. PS 8: Cultural Heritage will not be triggered as no tangible or intangible forms of cultural heritage have been identified in the project area and these are not expected to be discovered during project implementation.

Key risks, impacts, and mitigation measures

Risks and impacts

The potential impacts on environmental and social resources arising from the proposed development include direct and indirect impacts. Potential impacts are linked to the different stages of the project, i.e., construction, operation, and decommissioning. The proposed project's impacts are analysed to denote their significance based on their characteristics. Significance is judged based on their capacity to change baseline conditions beyond acceptable standards or legislative provisions.

Most of the project's adverse impacts are expected to occur during the pre-construction and construction phases. This includes impacts resulting from the clearing of vegetation, the construction of access roads, the preparation of the solar panel foundations, the installation of underground cables and overhead lines, as well as the construction of the substation and the service building, and the installation of the PV modules. While most impacts are expected to be of negligible significance, impacts with minor significance are expected in the following domains: flora, habitat loss, noise generation, soil erosion, surface and groundwater, dust emissions, traffic, wastewater, land and livelihoods, community health and cohesion, health and safety of workers, workers' rights, and visual impacts.

Assessment of alternatives

To enable the proposed project to seek different ways of avoiding and/or minimizing its impacts on the environment and at the same time achieve its objective, several alternatives were assessed:

- Site location alternative,
- site layout alternative,
- technology alternative,
- grid connection alternative, and
- no-project option.

The selected projected site was chosen over alternative sites as it presents the best solar potential, access to the national grid system, and favourable environmental and social conditions. The site layout was chosen to maximise energy production but can be modified to a limited extent to account for topographical, geographical, and environmental variables. Solar energy is considered the most suitable renewable energy technology for this site, based on site location, ambient conditions, and energy resource availability. The no-project option will mean that Kenya will not realize its economic road map as identified in Vision 2030 and energy policy of 2013 of raising generation capacity by at least 5000 MW from the current 1,664 MW to slightly over 6,700 MW by 2016.

Mitigation measures

Overall, the project is environmentally feasible with a few potential impacts, which can be avoided, minimized, mitigated, and/or compensated through appropriate mitigation measures. An Environmental and Social Management Plan (ESMP) was developed as part of the project's ESIA. The ESMP outlines areas of consideration with an aim to manage the project's significant impacts. It

Non-Technical Summary (NTS): Kesses 1 Solar Project, Kenya

describes the objectives, costs, resources, responsibilities, and monitoring indicators for each mitigation measure. The ESMP helps to ensure that negative impacts resulting from the project are mitigated and to ensure compliance with the relevant environmental and social laws and standards. The following paragraphs describe the relevant mitigation measure under each Performance Standard.

- PS 1: This Performance Standard requires the development of an Environmental Management System (ESMS) which entails a methodological approach to managing environmental and social risks and impact in a structured way on an ongoing basis. An ESMS for the project has been developed partly as part of the ESIA process and partly after the completion of the ESIA.
- PS 2: A Human Resource Management System will be put in place once the project reaches the construction phase. It will be adhered to by the project developer and a requirement of the EPC and Operation and Maintenance (O&M) contractor. A Traffic Management Plan and an Occupational Health and Safety Management Plan have been developed.
- PS 3: This Performance Standard aims to abate pollution to air, water, and land that may threaten people and the environment at the local, regional, and global levels. By harnessing solar energy to generate electricity, the project aims to prevent pollution by displacing use of non-renewable energy sources as well as promoting clean technology. On the other hand, adverse impacts and risks related to PS 3 have been identified and assessed in the ESIA. Relevant mitigation in line with Good International Industry Practice (GIIP) have been included in the project's ESMP. A Waste Management Plan has been developed.
- PS 4: The project area is in a predominantly rural setting, with a low population density and most of the surrounding land is farmland. Even though the area is close to the settlement of Eldoret, approximately 20 km away from the project site, which has a higher population, it is still considered a small town. The population density of the immediate area is low, and most of the land is used for agriculture. The only people living on the proposed project site and on the neighbouring farms are the landowners and their extended families. A Community Health, Safety, and Security Management Plan, an Influx Management Plan, and a Grievance Mechanism have been developed.
- PS 5: Land acquisition has been performed on private long term lease agreement with a single proprietor. No physical and/or economic displacement is expected. There are a few people working on the plot as full-time or part-time maize collectors for the plot owner. It is the declared intention of the plot owner to keep both the full time and part time jobs in the piece of land which will not be occupied by the PV plant. Monitoring is necessary to confirm that the declared intention of the plot owner is maintained, as otherwise appropriate mitigation would be necessary.
- PS 6: There are no critical habitats identified in the project area, and due to the nature of the activities on the plot of land (farming) most of the habitats are modified. There are specific features on the plot where no farming has taken place where natural habitats of relative value within a local or regional context can be found. These have been identified, impacts on them assessed, and mitigation measures proposed in the ESMP. A Soil Protection Plan has been developed.

Stakeholder engagement

In line with the Terms of Reference (ToR) approved by the National Environment Management Authority (NEMA), stakeholders were identified and engaged as part of the ESIA process. Public consultation and participation ensure that the views of affected and interested parties are incorporated as early as possible in the project development. The first step in the process of public participation was stakeholder identification. This helped in determining all organisations and individuals who may be directly or indirectly affected by the proposed project, either positively or

Non-Technical Summary (NTS): Kesses 1 Solar Project, Kenya

negatively. The stakeholders were classified into two main categories depending on their various needs, interests, and potential influences on the project. These included:

- **Primary stakeholders:** Groups of people and individuals directly affected by the project such as landowners, farmers and farm workers, and neighbours to the project site including members of the public and various institutions.
- **Secondary Stakeholders:** Groups of people and individuals indirectly affected by the project who can influence project development during its implementation. These include the responsible agency, Alten Kenya Solarfarms B.V, government line ministries (Ministry of Energy and Petroleum), county government (CO-Environment, Energy, Water and Natural Resource; Livestock and Agriculture; Trade; Planning, Public Works) and local administration (Chief and Assistant Chief in the Plateau Area).

Some of the major concerns from the consultation exercise include employment opportunities, security, impacts on the local economy, and power supply. In line with the objectives of the public participation and consultation exercise, the results of the engagement have been incorporated into the ESIA in the following ways:

- The socioeconomic section of the baseline of the ESIA has been informed by the consultation and engagement process.
- Impact identification has been informed by the outcomes of the consultation and engagement process.
- The identification and mapping of stakeholders has led to the development of a comprehensive database of stakeholders to be consulted in the future.
- In so far as possible major stakeholder concerns have been incorporated in the ESMP.