Environmental and Social Impact Assessment
Kube Energy Somalia, Baidoa Solar PV Plant

FINAL REPORT

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Acronyms

AMISOM	African Union Mission in Somalia
ATMIS	African Union Transition Mission in Somalia
EHS	Environmental, Health and Safety
ESP	Energy Service Provider
EPC	Engineering, Procurement and Construction
ESMP	Environmental Social Management Plan
DoECC	Directorate of Environment and Climate Change
EIA	Environmental Impact Assessment
ESIA	Environmental and Social Impact Assessment
GHG	Green House Gas
GoSWS	Government of South West State
IDP	Internally Displaced Person
IFC	International Finance Corporation
ILO	International Labor Organization
kWh	Kilowatt hour
MIGA	Multilateral Investment Guarantee Agency
MOE&T	Ministry of Environment and Tourism
MoEWR	Ministry of Energy and Water Resources
MoU	Memorandum of Understanding
MPWRH	Ministry of Public Works Reconstruction and Housing
MWth	Megawatts thermal
NPD-9	Ninth National Development Plan of Somalia
PPA	Power Purchase Agreement
PS	Performance Standards
PV	Photovoltaic
SCADA	Supervisory Control and Data Acquisition
SDG	Sustainable Development Goal
SNA	Somali National Army
SWS	South West State
UN	United Nations
UNCDD	UN Convention to Combat Desertification
UNFCC	UN Framework Convention on Climate Change
UNICEF	United Nations Children's Emergency Fund
UNSOS	United Nations Support Office in Somalia
UPS	Uninterruptible Power Supply

Executive Summary

Background

Somalia's government has prioritized the recovery of its energy and electricity infrastructure as a crucial enabler of economic development and poverty reduction, as is outlined in its ninth National Development Plan for 2020-2024. After a prolonged period of conflict and state collapse, Somalia's energy sector is inefficient and existing installed capacity is not sufficient to meet current and future demand. Power is provided by private energy service providers who predominately operated diesel-powered mini grids. This has resulted in a very expensive and inefficient power supply—with electricity prices that are among the highest in the world—which impedes access to electricity for Somalis and is constraint to economic growth.

Baidoa is as a strategically important city and economic center in South West State (SWS), Somalia, located along a key trade corridor connecting to the seaport of Mogadishu. It is the present base of the Government of South West State (GoSWS) of Somalia, a sector headquarters for the African Union Transition Mission in Somalia (ATMIS), formerly known as the African Union Mission in Somalia (AMISOM), and a regional hub for the United Nations Assistance Mission in Somalia (UNSOM), and other UN entities. However, the UN, the GoSWS, and international organizations in Baidoa continue to rely on diesel-powered generators for their operations, and on costly and often unreliable electricity from the diesel-powered grid. This inhibits efficient delivery of services for the population, and is environmentally unsustainable.

The transition to renewable energy is necessary for the UN to meet its climate and sustainability goals and to reduce its environmental footprint, including in peacekeeping operations. It is also a pressing need for Somalia to shift away from environmentally unsustainable fossil fuels, charcoal and firewood, and to develop its renewable energy infrastructure. Somalia has favorable conditions for solar energy generation, getting on average 2,900 to 3,100 hours per year of sunlight.

Project overview

Kube Energy is a Norwegian renewable energy services company established in 2015 which provides access to renewable energy in remote and fragile areas. In 2018, Kube Energy entered into an agreement with the GoSWS to develop a hybrid photovoltaic (PV) plant in Baidoa. Kube Energy partnered with CrossBoundary Energy (CBE) Holdings, Sub-Saharan Africa's first investment platform for commercial and industrial solar, for the financing and further development and implementation of the Project. The power plant will be located, within the 'green zone,' the security perimeter protected by ATMIS forces near the Baidoa airport. The power plant will generate electricity from the solar array, with estimated initial capacity of 1.9 MW of solar PV modules, 3 MWh of battery storage integrated with synchronized diesel generators. There is potential to expand this in a second phase of construction.

The project site is a vacant 4-hectare plot that is owned by the GoSWS and that the GoSWS, in coordination with ATMIS, has designated for this development. The GoSWS has leased the land

for 15 years to Kube Energy Somalia, the company that is registered and licensed to operate the power plant in Somalia. After 15 years of commercial operation, ownership of the plant will be transferred to the South West State, with the intention that it form part of Baidoa's permanent energy infrastructure.

The United Nations Support Office in Somalia (UNSOS), which provides support to ATMIS and other UN offices, will be the largest consumer of the electricity produced by the power plant, and has entered into a 10-year Power Purchase Agreement (PPA) with Kube Energy. In addition, Kube Energy intends to supply power to the GoSWS headquarters and to other international organizations operating within or adjacent to the green zone, pending the signing of additional PPAs. Kube Energy Somalia's operating license allows it to sell and distribute power to international organizations within and adjacent to the green zone. Any distribution of power generated by the plant outside of the green zone to a local entity must be via a locally registered utility company.

Purpose of the ESIA

The purpose of the Environmental and Social Impact Assessment (ESIA) is to determine the environmental and social impact of the planned power plant, to improve its environmental and social performance, and to identify any potential negative impacts early in the planning process, so that they can be prevented or mitigated. The ESIA is also intended to satisfy the Environmental and Social (ES) requirements of Kube Energy Somalia and the Multilateral Investment Guarantee Agency (MIGA). It has been carried out in line with the International Finance Corporation (IFC) Performance Standards on Environmental and Social Sustainability (Performance Standards).

Project Description

Phase 1 of the project will involve construction of a power plant with total estimated capacity of 1.9 MW solar PV modules and 3 MWh of battery storage integrated with synchronized diesel generators. The size of the project site and the design of the plant allow for a potential expansion during Phase 2 of construction with additional 1.5MW solar PV panels, and additional battery storage and gensets.

The main components of the power plant to be installed at the site during Phase 1 are:

- Solar PV modules and mounting system;
- Battery Energy Storage System (1.25MW/3.2MWh)
- Synchronized diesel generators (3x 500 kVa) totaling 1.5 MVA (1.2MW).
- Electrical equipment, including the inverters, transformers and distribution system.
- Interconnection to off-takers via a medium voltage transmission line.

A number of additional structures and facilities will be required on site to operate the plant and to service employees and contractors. These include a rest and mess area, office, sex-segregated sanitary facilities, water storage tanks, diesel storage tanks, septic tanks, and perimeter fencing.

Project site

The project site is 4-hectares of land located within the green zone perimeter that is the area protected by ATMIS. The GoSWS has entered into a 15-year land lease agreement with Kube Energy Somalia to develop the site as a solar PV plant. It has also provided Kube Energy Somalia with the necessary permits, authorizations and licenses to construct and operate the plant. The land within the green zone, including the project site, is public land that is under the jurisdiction of the GoSWS. Access to the land has been restricted and the land has not been used, apart from occasional use by ATMIS forces' vehicles, since the green zone was established when Baidoa was recovered from Al-Shabaab in 2012.

Policy and Legal Framework

Many policies, laws and regulations related to ESIA, environmental protection, energy, and labor and working conditions are currently being developed or are under review in Somalia at both Federal government and State levels. The project will adhere to all laws and regulations that are in force (legally binding) and that apply in SWS of Somalia. Relevant policies, laws and regulations are reviewed in detail in Section 3 of the report. The project will also be carried out in accordance with the IFC Performance Standards, the General Environmental Health and Safety (EHS) Guidelines and the industry guidelines for Electric Power Transmission and Distribution, as well as Good International Industry Practice Standards (GIIP).

Existing Environmental and Social Conditions

Climate and extreme weather events

Baidoa is located in a moist semi-arid climatic zone. There are two rainy seasons of 30-90 days each, and mean annual rainfall is 500-600 mm. Temperatures are hot and relatively consistent year-round, with average daily high temperatures close to or over 90°F over the course of the year, and average daily low temperatures above 67°F. Baidoa and the surrounding areas have been affected by extreme weather events, including severe drought and floods.

Topography, Geology and Hydrology

Baidoa is located at an altitude is approximately 440 meters above sea level. According to FAO data, the soils in the agro-ecological zone encompassing Baidoa are classified as nitisols, vertisols, and planosois. Based on a preliminary site assessment, both riverine and overland flood risks are expected to be low due to the hydrological and physiographic characteristics of the site. An assessment of potential future flood risks to the site will be completed.

Groundwater and Surface Water

Isha spring, in the center of town, is the nearest surface and ground water source, located approximately 1 kilometer from the project site. There are no existing boreholes at the project site, and no plans to construct any boreholes as part of the project.

Biological environment

The project site is located within an already built-up urban area next to the airport and ATMIS military structures. The site has previously been largely cleared of vegetation which has subsequently regrown. The existing vegetation cover at the site is dominated by grasses and woody shrubs. It is degraded and in some cases absent due to vehicle traffic and previous use

of the site by AMISOM/ATMIS for storage. There is no unique biological diversity at the site and no species that are threatened from the perspective of biodiversity conservation. There are also no protected areas or areas with potential as future protected areas nearby or within the project's area of influence.

Population and socio-economic profile

There is no recent population data for Baidoa district. However, Baidoa has experienced rapid population growth largely due to the influx of internally displaced persons (IDPs) from surrounding areas, and its population is estimated to have tripled from 2016 to 2018. As of October 2021, there were 572 IDP sites and 475,035 displaced individuals living in settlements in and around the town, of which 228,017 were male and 247,018 were female. As a result, the built-up area has expanded and the density of the city has increased.

Baidoa is an agricultural and livestock trade center with strong links to neighboring rural areas and to other cities. It is a center for sorghum farming and livestock breeding, raising and trade.

The IDP population in Baidoa are in a vulnerable situation with humanitarian needs classified as severe to extreme across most areas in 2022, including food security and livelihoods, nutrition, health, protection, education and water and sanitation.

The majority of the population is Muslim and the majority clans are Digil and Mirifle clans (also known as the Rahanweyn).

Women and girls are disadvantaged compared to men across multiple domains, including economic opportunity, education, and political participation. Women in Somalia experience higher unemployment rates than men: 74% for women and 61% for men. The Somali private sector is dominated by micro, small and medium enterprises of which women are often the main drivers.

Security

Somali forces retook control of Baidoa with the support of Ethiopian forces in 2012. Since then, AMISOM/ATMIS and Somali National Army forces have ensured the security of the city, with logistical support provided by UNSOS. Somali and regional forces currently control the city and its immediate surroundings. The security situation in Baidoa has gradually improved since 2012. However, inter-clan conflicts, crime and terrorist attacks continue to pose peace and security challenges. Al-Shabaab has been substantially weakened but maintains some capabilities.

Municipal water, sanitation and waste management services

The project will not make use of municipal services, apart from potentially utilizing a municipal water source. The main water sources for the town are boreholes located on the outskirts of the town, unprotected shallow wells in town and the Isha Spring. Warjiny Water Company, is the largest water company in Baidoa. Baidoa's public waste management facilities, management systems and regulations are currently under development. There are private service providers who collect and dispose of solid waste and domestic wastewater. Currently, there are no recycling facilities in Baidoa, including for e-waste, and no qualified local service providers for handling hazardous wastes.

Health facilities

Baidoa has two main hospitals, Bay Regional Hospital (near the UNSOS), and Bay Haw Hospital, in the northern part of town. There are other primary health care facilities and maternal and child health centers managed by international organizations throughout the city. There is a UN level 2 hospital within the UNSOS compound that provides a range of services to UN staff and contractors.

Cultural heritage and archeological sites
There are no registered cultural heritage sites within Baidoa, although sites of historical and archeological significance have been discovered approximately 60 km southwest of Baidoa, in Buur Hebye and Gogoshiss Qabe.

Stakeholder Engagement Process
As part of the ESIA, consultations were held with stakeholders who may be interested in or affected by the project. The aim of the consultation process was to inform the stakeholders about the proposed project and its impacts, to gauge their attitudes towards the project, and to gather feedback, concerns and suggestions so that this could inform the ESMP. In addition, the process aimed to establish relationships and inform mechanisms for future engagement during the construction and operation of the plant.

A total of approximately 27 individual interviews were conducted with representatives of the SWS and federal government, Baidoa district administration, community representatives from Baidoa, and international organizations. Stakeholder engagement is continuing after the ESIA process.

The information and feedback received has informed the ESIA and the ESMP. The project proponents will develop a Stakeholder Engagement Plan to communicate and disclose project-related information to key stakeholders. A Grievance Redress Mechanism will be established so that workers and community members can confidentially and safely raise any concerns, and to provide a way for the project proponents to resolve any grievances that are raised.

Assessment of Environmental and Social Impacts

The ESIA identified potential positive and negative environmental and social impacts of the project. Where there were potentially significant negative impacts, mitigation measures were identified to minimize the effect to an acceptable level. Overall, the project will have a significant positive environmental and social impact, while the negative impacts can be managed with mitigation techniques and by following international standards and good practices related to health, safety and environmental management measures.

Positive impacts of the project include:

- Contributing to satisfying Baidoa's electricity demand in a way that reduces dependence on fossil fuels, reduces greenhouse gas emissions which contribute to climate change, and reduces other harmful air emissions.

- Creating employment opportunities directly by employing local workers during construction and operation of the plant, as well as indirectly by utilizing local service providers.
- Providing cost-savings and more reliable electricity to off-takers, who will include the GoSWS, UNSOS and other international organizations, such that they can provide more efficient services to the people of Baidoa.
- Contributing to Baidoa's long-term renewable energy infrastructure, as ownership of the plant will be transferred to the government after 15-years of operation.
- Promoting the development of solar energy in Somalia, by providing a model for other districts, as well as through the transfer of industry-specific skills to local contractors and workers.
- Generating revenue for the GoSWS.

Potential negative environmental impacts include temporary and localized impacts that arise from the construction process. These include impacts on air quality from dust released during earthworks and air emissions associated with the use of equipment and machinery. It also includes noise and vibration resulting from the use of heavy machinery. These impacts are typical of most construction sites and are minor if mitigation measures are applied.

Potential negative impacts on soil or groundwater during construction and operation could arise due to accidental leakages or spills of fuel or oil, or from leakages or improper disposal or management of solid waste, wastewater, or hazardous waste. This risk can be reduced to an acceptable level with the management plans in place, including good maintenance and housekeeping measures, rigorous waste management procedures, and the implementation of proper onsite storage of fuel and spill containment systems.

The project activities will have limited impact on community health and safety because all construction activities will take place within the green zone, where access is restricted. The green zone perimeter is walled and the project site will also be fenced and guarded, such that the impact of project activities onsite should have limited impact on neighboring areas, and the impact will be negligible with the mitigation measures in place. The majority of workers will be recruited locally (and those from outside of Baidoa will not leave the green zone), and the impact on traffic will also be minor because the major project components will be transported by airfreight.

Potential negative social impacts on workplace health and safety can be reduced through occupational health and safety measures. All contractors will be required to develop and implement HSE management plans, including providing training for workers on HSE issues.

Analysis of alternatives

The ESIA considered alternatives to developing the proposed project, including the option of not developing the project, alternative site locations, and alternative technologies.

- ***No development option:*** Resorting to no development action would likely result in continued costly, unreliable and unsustainable energy from diesel generators. This would result in higher GHG emissions than in the scenario where the plant is developed.
- ***Alternative site location:*** Security and proximity to the main off-takers were key considerations determining that the project site could only be located within the green zone. Furthermore, the selected site is suitable for the installation of the power plant, and will not negatively impact surrounding communities or areas of biological or cultural significance, nor will it disrupt existing activities and land uses.
- ***Alternative technology:*** Solar energy technology is suitable in Baidoa due to: high level of solar radiation, the availability of land, relatively low technological requirements for the plant's operation, system reliability, cost-effectiveness, and reduced GHG emissions and environmental impact. The specific choice of technology and mounting structures was selected for efficiency, cost effectiveness, and to minimize earthworks.

Environmental and Social Management Plan (ESMP)

Kube Energy Somalia is responsible for Environmental and Social (E&S) performance of the Project and for ensuring that contractors commissioned during the construction and operations undertake necessary measures to comply with the ESMP. CBE's environmental and social management system (ESMS) will be used for the Project, and CBE's E&S policies and guidelines will apply to the Project, will be adopted by Kube Energy Somalia, and contractors/sub-contractors will be required to abide by them. In addition, Kube Energy Somalia will be supported by the CBE corporate-level EHS Manager to oversee and approve E&S related policies, plans and procedures at the Project level.

An ESMP was formulated to outline all of the measures that Kube Energy Somalia and the Contractors should follow during construction and operation of the plant. This is summarized in the Table in Section 8.

In addition, Kube Energy Somalia and the Contractors will develop management plans for specific aspects of the project. Plans will include, but not be limited to:

- Environmental and waste management plan, including pollution prevention plan and water management
- Occupational health and safety plan, including the risk assessments and methods statement
- Emergency preparedness and response plan
- Transport plan
- Training plan
- E&S monitoring plan
- Chance finds procedure which outlines the process to be followed in the unlikely event that previously unknown archeological or cultural heritage resources are encountered during Project-related activities.

Conclusion

The project is anticipated to result in a net positive environmental and social impact. The potential negative impacts for the proposed project activities are minimal and will be mitigated through the measures outlined in the ESMP.

Section 1. Introduction

1.1 Background

Somalia's government has prioritized the recovery of its energy and electricity infrastructure as a key enabler of economic growth and poverty reduction, as is outlined in its ninth National Development Plan for 2020-2024 (NPD-9). Somalia's power generation and distribution systems are highly fragmented and inefficient after prolonged neglect during decades of state collapse and conflict in southern Somalia. Somalia's electricity service is provided by private energy service providers (ESPs) who provide power primarily through diesel-powered mini grids. As outlined in Somalia's Power Master Plan, the existing installed capacity is insufficient to meet current and future demand and unregulated electricity generation and distribution through private actors is fragmented and inefficient.

This has resulted in a very expensive and inefficient power supply, which impedes access to electricity for Somalis. Somalia has one of the most expensive tariffs in the world, as customers pay up to USD 1.2 per KWh. High electricity prices and unreliable supply are a major constraint to the emergence of competitive industry and undermine the efficient delivery of essential services. High prices also hold back the shift in household energy demand away from environmentally unsustainable charcoal and firewood to renewable sources. This energy transition is pressing in Somalia: severe land degradation, deforestation, recurring drought, floods and other climatic shocks worsened by climate change are significant drivers of displacement, household vulnerability and resource-related conflicts, in a context characterized by protracted humanitarian crises.

Somalia has favorable conditions for solar energy generation, getting on average 2,900 to 3,100 hours per year of sunlight. However, the primary sources for providing electricity are currently high-speed diesel generation sets, with limited use of grid-tied solar photovoltaic (PV) generation. Although some ESPs have PV to their systems throughout Somalia, Baidoa's grid remains diesel-powered. The yearly average solar radiation in Baidoa is 1944 kWh/Km2/year.

Baidoa is as a strategically important city and economic center in South West State (SWS), Somalia, located along a key trade corridor connecting to the seaport of Mogadishu. It is the present base of the Government of South West State (GoSWS) of Somalia, a sector headquarters for the African Union Transition Mission in Somalia (ATMIS), formerly known as the African Union Mission in Somalia (AMISOM), and a regional hub for the United Nations Assistance Mission in Somalia (UNSOM), and other UN entities. The United Nations (UN) and other international organizations have a substantial, long-term presence. ATMIS and the UN play an essential role in security provision, alongside support to develop the capacity of Somali forces and the wider peacebuilding efforts. The UN and other international organizations also play a critical role in humanitarian and development support, including to over 475,000 internally displaced persons (IDPs) who live in over 500 sites in the city.

The UN, the GoSWS, and international organizations in Baidoa continue to depend upon costly, unreliable and unsustainable private diesel generators as well as the diesel-powered grid. High electricity costs and unreliable supply are a constraint economic activity and the efficient

delivery of basic services by the government and the UN, as well as to access to energy for households.

1.2 Project Overview

Kube Energy is a Norwegian renewable energy services company established in 2015 which provides access to renewable energy in remote and fragile areas. In 2018, the GoSWS and Kube Energy entered into a Memorandum of Understanding (MoU) guiding the development of a hybrid photovoltaic (PV) plant in Baidoa, Somalia. Subsequently, Kube Energy Somalia was registered as a registered company in Somalia to undertake the project. Kube Energy Somalia partnered with CrossBoundary Energy (CBE) Holdings for the financing and further development and implementation of the Project. CBE was launched in 2015 and is Sub-Saharan Africa's first investment platform for commercial and industrial solar. It provides solar electricity to African enterprises, through fully financed Power Purchase Agreements (PPAs) or leasing solutions.

The proposed power plant will have an estimated initial capacity of 1.9 MW of solar PV modules and 3 MWh of battery storage integrated with synchronized diesel generators. It will be located within the 'green zone,' the security perimeter protected by ATMIS forces. The entities present within the green zone include Baidoa Airport, the UN and ATMIS regional military and operational hubs, other commercial entities and the GoSWS administrative headquarters. The plant will be located on a 4-hectare plot that has been leased to Kube Energy Somalia by the GoSWS for 15 years. In line with the MoU, after 15 years of commercial operation, ownership of the plant will be transferred to the local government, with the intention that it form part of Baidoa's permanent energy infrastructure.

The United Nations Support Office in Somalia (UNSOS), which provides support to ATMIS and other UN offices, will be the largest consumer of the electricity produced by the power plant. In 2020, UNSOS awarded Kube Energy a 5+5-year PPA. In addition, Kube Energy Somalia intends to supply power to the GoSWS headquarters and to other international organizations operating within or adjacent to the green zone, pending the signing of additional PPAs. Kube Energy Somalia's operating license allows it to sell and distribute power to international organizations within and adjacent to the green zone. Any distribution of power generated by the plant outside of the green zone to a local entity must be via a locally registered utility company.

1.3 Scope and purpose of the ESIA

The purpose of the Environmental and Social Impact Assessment (ESIA) is to determine the environmental and social impact of the planned power plant, to improve its environmental and social performance, and to identify any potential negative impacts early in the planning process, so that they can be prevented or mitigated. The ESIA is intended to satisfy the Environmental and Social (E&S) requirements of the project proponents and the Multilateral Investment Guarantee Agency (MIGA), specifically the International Finance Corporation (IFC) Performance Standards on Environmental and Social Sustainability (Performance Standards).

The ESIA assesses the potential positive and negative E&S impacts in the plant's area of

influence. This includes (a) the immediate premises affected by the construction and operation of the plant (b) secondary impacts linked with the interconnections, including distribution lines, which may occur later, from the plant to other off-takers beyond UNSOS (c) indirect impacts of the plant's commissioning and operation on services, infrastructure, and the surrounding area within Baidoa.

The ESIA evaluates impacts at different phases of the project life, including site preparation, construction, start-up and operation. It has been carried out based upon the agreed high-level design, plant components and parameters, but maintains flexibility to accommodate different design, technical and operational alternatives, which do not have significant implications in terms of the project's E&S risks. This is intended to allow for some flexibility in the selection of Engineering, Procurement and Construction (EPC) contractors based upon their proposals of the most relevant, efficient and cost competitive solutions.

The plant size, design and the interconnection requirements are based upon the estimated energy demand and interconnection requirements of UNSOS and other off-takers with whom PPA discussions are advanced. There is potential to expand the solar array at the same site in the event that energy demand increases or a PPA is signed with a locally registered utility company that distributes power to customers in Baidoa outside the green zone. Both the planned development (phase 1), and the potential expansion (phase 2), are considered within the scope of this ESIA.

The scope of this ESIA includes:

- Description of the proposed project;
- Summary description of the legislative and regulatory framework applicable to the ES aspects of the project;
- Description of baseline E&S conditions in the project area;
- Stakeholder engagement and discussion of findings;
- Identification and discussion of potential positive and adverse impacts to the environment anticipated from the proposed project, and appropriate mitigation measures;
- Provision of an Environmental and Social Management Plan (ESMP) outline.

1.4 Outline of the ESIA

This report is structured as follows:

Section 1 – Introduction: background and an overview of the proposed project, purpose and scope of the ESIA.

Section 2 – Project Description: including the site location, project components and design, and the requirements during construction and operation.

Section 3 – Policy and Legal Framework: review of the legal and regulatory framework and the IFC Performance Standards applicable to the project activities.

Section 4 – Environmental and Social Baseline: describes the physical and biological environment, and socio-economic conditions in the project area.

Section 5 – Stakeholder Engagement: describes the stakeholder consultations, findings and ongoing stakeholder engagement process.

Section 6 – Environmental Impact Assessment and Mitigation: discusses the potential impacts from project activities during construction and operation and their mitigation measures.

Section 7 – Analysis of Alternatives: discussion of alternatives for different project components.

Section 8 – Environmental and Social Management Plan: provides the E&S management measures and monitoring plan for the project.

Section 2. Project Description

2.1 Project objectives

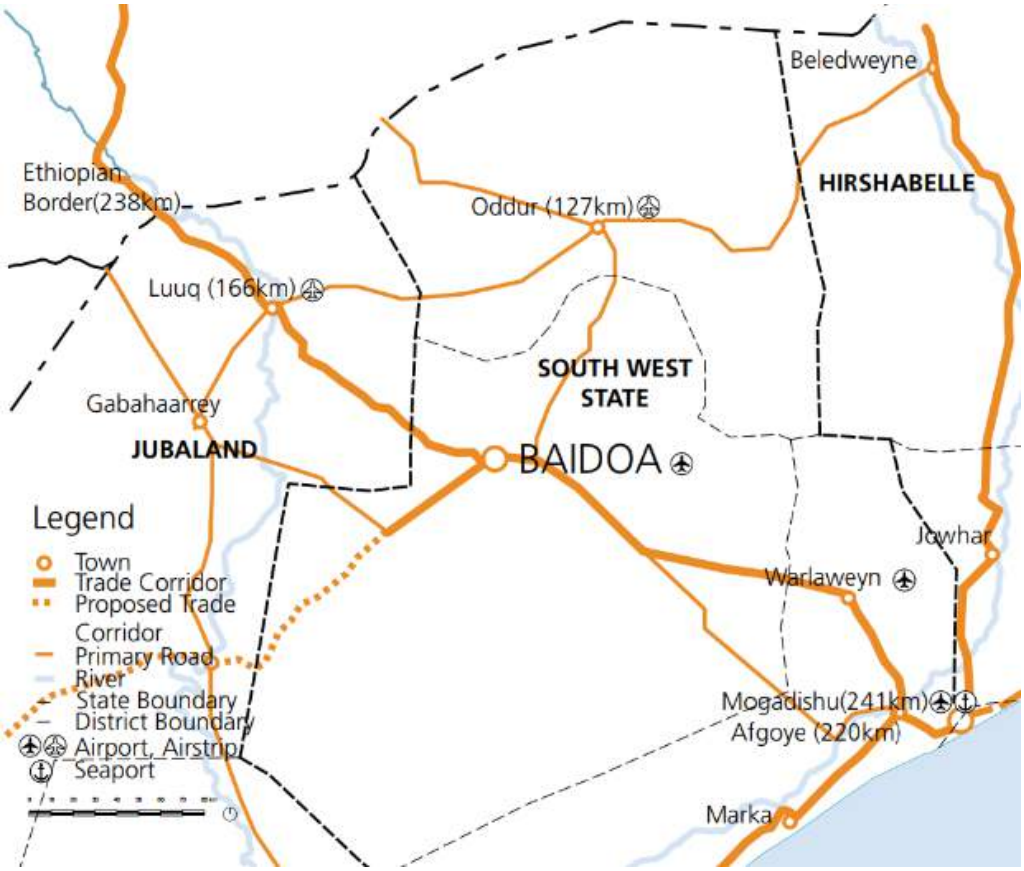
The main objective of the project is to provide reliable, lower-cost, renewable energy that meets the immediate energy demands of UNSOS, the GoSWS, and other international organizations operating within or adjacent to the green zone in Baidoa, while also contributing to Baidoa's long-term energy infrastructure and supporting the use of renewable energy in Somalia. The specific project objectives include:

- **To increase Somalia's renewable electricity generation capacity and reduce GHG emissions.** The plant, based upon sizing for phase 1, will generate an estimated 2,900MWh per year from renewable energy. This will replace power generated entirely with diesel generators, reducing fuel consumption by 870,000 litres per year and displacing CO_2 emissions by 2,300 tons per year.
- **To provide UNSOS, the GoSWS and other off-takers with cost-savings and more reliable electricity, increasing the efficiency of their operations and ability to deliver services.** The project is anchored by the PPA with UNSOS, which is expected to be the main off-taker. It will replace UNSOS's existing electricity supply from diesel-powered generators with energy from renewable sources at a lower cost, providing UNSOS with significant cost savings. The intention is also to provide the GoSWS and other international organizations with more reliable, lower cost, renewable power, replacing their current expensive and unreliable power from diesel, thereby increasing the efficiency of their operations and allowing funds to be reallocated for other purposes.
- **To contribute to Baidoa's long-term renewable energy infrastructure.** Ownership of the plant will be transferred to the GoSWS after 15 years, such that the plant eventually contributes to Baidoa's long-term energy security from renewable sources.

2.3 Project location

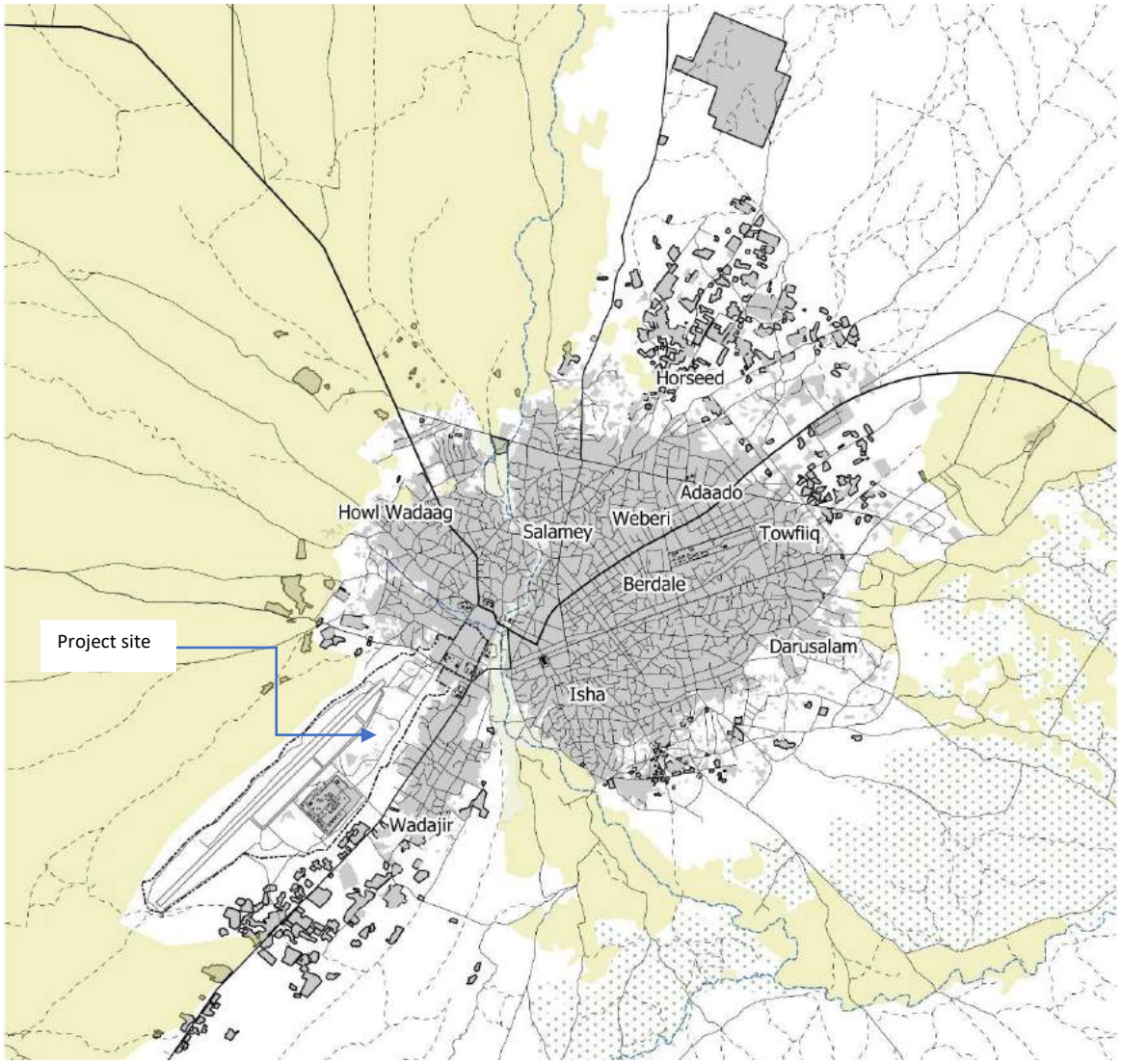
The project is located in the city of Baidoa, the interim capital of South West State (SWS) of Somalia. Baidoa is approximately 240 kilometers west of Mogadishu and southeast of the Ethiopian border (see Figure 1).

Figure 1. Baidoa regional context[1]



[1] Map from SWS Ministry of Public Works, Reconstruction and Housing (MoPWRH) (2020). Baidoa Urban Profile.

Figure 2. Baidoa urban villages[2]



Green Zone (UNSOS & Airport compound) ----------

River ----------

Built up area

IDP settlements

Primarily Agricultural Land

[2] Map adapted from SWS MoPWRH (2020). Baidoa Urban Profile.

The project site is located on the southwestern side of Baidoa, within the boundary of the 'green zone,' the security perimeter that is protected, guarded and patrolled by ATMIS forces. The green zone perimeter is fenced and access to the green zone is strictly controlled, requiring an authorization or a valid ticket and identification for a flight. Access is heavily controlled, and all people and vehicles are searched before entering through checkpoints and the main gate. Other entities within the green zone include the Baidoa Airport, the UN compound, ATMIS military structures, the GoSWS offices, and other commercial entities.

The surrounding areas of Baidoa outside the green zone perimeter are shown in Figures 2 and 3. Wadjadir, a sub-village of Isha is the nearest residential area situated to the east of the green zone. The area to the west of the green zone is primarily agricultural land. South of the green zone is a gravel road leading towards Bardera. IDP settlements are primarily located on the outskirts of Baidoa, including along the Baidoa-Bardera road south of Wadjadir.

The plant will be located on a 4-hectare plot in proximity of the UN compound. There are existing access roads surrounding the site. The other structures neighboring the site within the green zone are Baidoa Airport Terminal and ATMIS military structures. To the east of the site located across a road and outside of the green zone security fence, there is a residential area which is approximately 100 meters from the perimeter of the project site. Kube Energy is coordinating with ATMIS and the UN to carry out risk assessments with regard to the location of the project in the green zone.

Figure 3: Overview Baidoa airport area and project site

The GoSWS has entered into a 15-year land lease agreement with Kube Energy Somalia to develop the site as a solar PV plant. It has also provided Kube Energy Somalia with the necessary permits, authorizations and licenses to construct and operate the plant. Access to the land has been restricted and the land has not been used, apart from occasional use by AMISOM/ATMIS vehicles, since the green zone was established when Baidoa was recovered from Al-Shabaab in 2012. At that time, AMISOM deployed at the airport and established the security perimeter, within which the UN and the GoSWS established their headquarters/offices.

The land within the green zone, including the project site, is public land that is under the jurisdiction of the GoSWS. Requests for access to the green zone are reviewed by the SWS Ministry of Interior and approved by ATMIS. Private operators within the green zone lease land from the GoSWS. No resettlement, legacy or compensation issues relating to the establishment of the green zone or the project site were identified during the ESIA. (See Section 6.3.10 for further discussion of the land lease and historical use of the site.)

2.4 Plant design and components

The power plant, as planned for phase 1, consists of 1.9 MW of solar PV modules combined with a battery storage system and diesel generators. The components of the plant include:

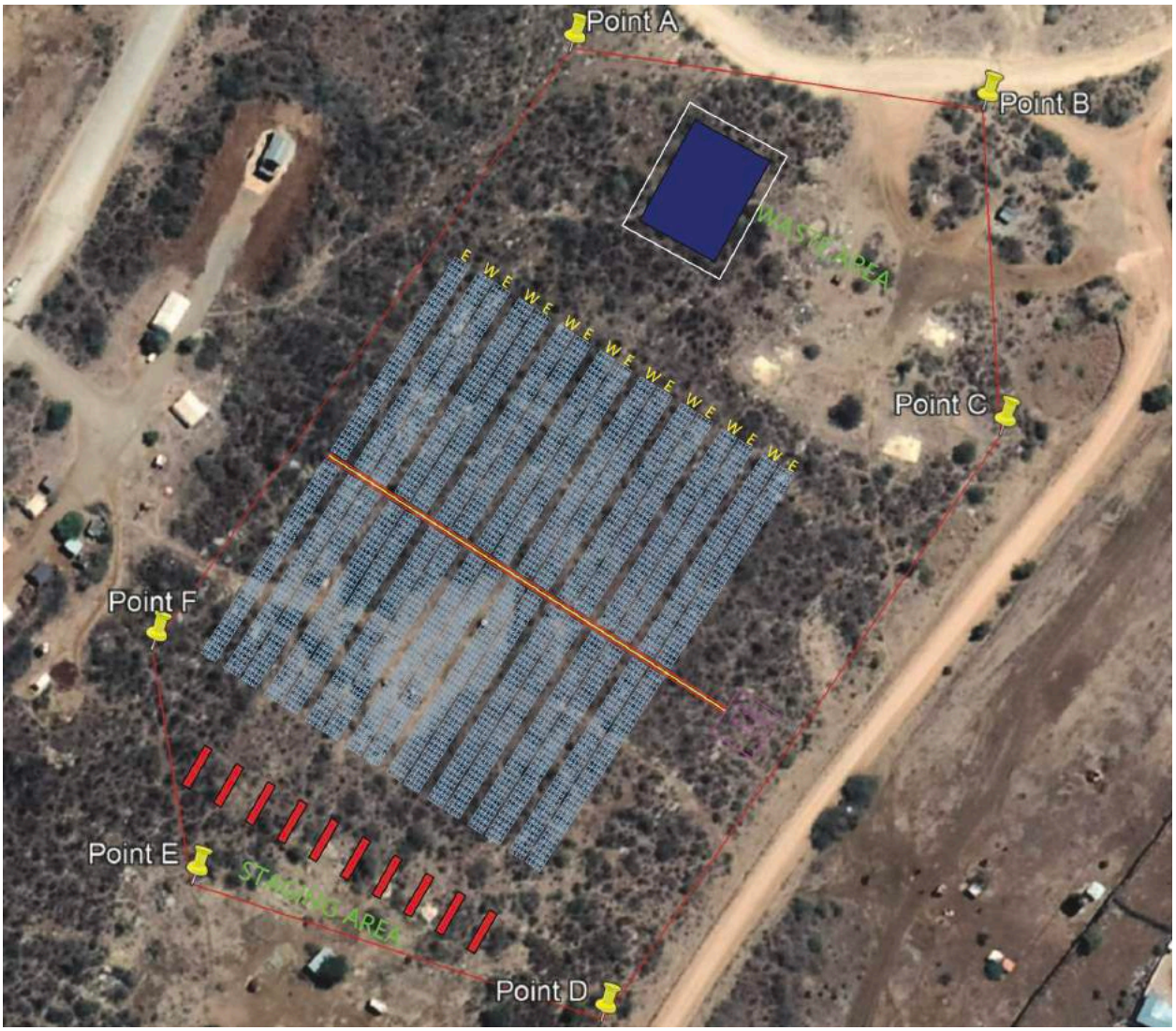
- **Solar PV modules and mounting system** – Solar energy conversion to electricity takes place in solar cells that are connected together to form PV modules (solar panels). The plant will include installation of a total of 1,920 kWp solar PV modules with an east west fixed tilt structure.
- **Battery bank** – The plant will use a Battery Energy Storage System (BESS) (1.25MW/3.2MWh) that enables electricity from the PV modules to be stored for later use and that optimizes the plant's performance and a BESS inverter.
- **Thermal Generators** – The diesel generators are used to steadily fill the gap between the load and the power generated by the PV system, which can be inconsistent. The plant will have three synchronized diesel generators (3x 500 kVa) totaling 1.5 MVA (1.2MW).
- **Electrical equipment –** Electrical components will include the inverters, transformers and distribution system.
- **Interconnection** – The power plant will distribute power to UNSOS through a medium voltage transmission line. Power will be stepped down via MV/LV transformers to be directly connected to UNSOS's existing power infrastructure via low voltage (230/400) three-phase connection to distribution boards at UNSOS's three power houses. A medium voltage transmission line will be built to connect the plant to the GoSWS compound within the green zone.

The 1.9 MW solar array will cover a land area of approximately 2 hectares out of the total 4 hectare project site. The plant has been designed and the site has been dimensioned so that in the event that energy demand increases in the future, this can be met with additional solar PV panels. Figure 4 shows the preliminary plant layout.

In the event that energy demand increases, or a PPA is signed with a local utility company to supply power to customers outside of the green zone in Baidoa, the plant can be expanded in a second phase. The detailed plans for Phase 2 are not yet developed, however this may include:

- **Additional Solar PV modules –** up to 1,500 kW of PV modules, with the eventual addition of BESS or generator components, which would increase capacity to supply electricity during day and night time hours.
- **Additional interconnection points -** Additional connection points may be established within the green zone to serve additional off-takers. Connection to a local utility company can be established via existing transmission lines operated by the local utility and running near the green zone perimeter.

Figure 4. Preliminary drawing of the power plant layout (final design may change)



2.5 Structures required to support construction and operation

In addition to the components of the power plant described above, a number of additional structures and facilities will be required on site to operate the plant and to service employees and contractors. These include:

- **Rest area/mess area and office** – An office space as well as a shaded area will be constructed using locally procured materials to serve as a rest area and canteen for workers, where a simple cooking facility using LPG burners will be available.
- **Sex-segregated sanitary facilities** – Sex-segregated latrines will be constructed using locally procured materials. The sanitary facilities will be designed to give consideration to the safety and privacy of women using the latrines, and the number of facilities will be proportionate to the sex of the workforce. A septic tank that is lined to prevent leakage will be constructed.
- **Water storage** – Water required for construction and maintenance will be stored in two 10,000-liter water tanks on site. Potable drinking water for workers will be supplied separately.
- **Diesel storage –** Diesel will be used to power the generators during operation of the plant. It will be stored in two 10,000-liter above ground storage tanks. The storage tanks and delivery bay will be fully bunded (110% maximum volume bund), to prevent spillage.
- **Fencing –** The perimeter of the plant will be enclosed with fencing of an appropriate standard, with signs prohibiting public access. There will be two gates, one main gate and a service gate that will also serve as an exit.

2.6 Construction process and requirements

Location of construction activities

All of the construction works will take place within the green zone. The solar array, BESS, gensets, inverters, as well as the facilities and structures to support construction and operation described above, will be installed at project site within the boundary fencing of the power plant. The new transmission lines that will connect the plant with the UNSOS compound and to other off-takers (pending the signing of PPAs) will be located within the green zone. In the event that the plant is connected to a local utility company that supplies power outside of the green zone during Phase 2, connection will be established to existing transmission lines along the green zone perimeter.

Timeline

According to the project timeline, the power plant will be commissioned 10 months from the notice to proceed (NTP). The following is an overview of the process:

- Signing of land lease agreement and issuance of licenses/permits (NTP)
- Full site and constructability assessment including demarcation of project site and local logistics survey for accessibility, storage and handling of equipment

- Layout, engineering and electrical design
- Civil works and site preparation will be completed (while the systems are under production and transportation) (NTP + 3 months)
- Equipment suppliers produce and deliver integrated systems (NTP + 4 months).
- Transportation of equipment to site (NTP + 5 months).
- Mechanical completion of installation, commissioning and testing (NTP + 6 months)

Transportation

The components of the power plant will come from various locations, including Germany and China. Containers will be shipped by sea to Mogadishu port. From Mogadishu, the main components will be airlifted to Baidoa. Materials and equipment required for the project that are not imported will be procured locally in Baidoa and transported by truck to the project site. The use of airfreight combined with local procurement has been assessed as the safest option due to the security situation along the Baidoa-Mogadishu road.

Site preparation/civil works

The following activities have been implemented, or will be implemented, during the site preparation stage:

- Geotechnical investigations to prepare the site for construction
- Clearing the site of rocks and vegetation and leveling the ground to the extent this is required
- Ensuring the site meets drainage requirements.
- Concrete works to prepare the foundation for the batteries, generators and liquid storage tanks
- Construction of sanitary facilities, septic tank/soak pits, and rest area
- Installation of fencing and potentially also perimeter lighting

Installation

The substructures for the solar plant will consist of stainless steel. These structures will be secured to the ground by 1.2-meter piles, which avoids the use of concrete.

The battery containers, generators and liquid storage tanks will be based on concrete blocks. Approximately 250 blocks will be used in the foundation of these structures and the concrete and marram will be procured locally. A small excavator will be used to dig cable trenches internally at the site, as well as to the connection points for UNSOS and to other off-takers.

2.7 Operation requirements and process

Once constructed, the operation and maintenance requirements of the hybrid PV solar plant primarily involve:

- Preventative maintenance;
- Monitoring and regular production measurements using Supervisory Control and Data Acquisition (SCADA) system;
- Checking the main components for damage and wear and changing of parts;
- Refueling and routine maintenance of the diesel generators.

The solar panels have a 20-year performance guarantee. They primarily require preventative maintenance, which consists of the cleaning PV modules and vegetation control. The operation of the BESS and electrical equipment is likely to require simple maintenance (e.g. to change fuses). A comprehensive maintenance check will be provided two times a year, where the integrity of main components is verified.

The gensets on site will require maintenance every 250 hours of operation (e.g. changing air filters) and will require weekly fueling. A provision of 20,000 liters of fuel will be stored on site, which is enough to supply about two months of operation. The fuel will be provided by a local sub-contractor, brought to the site in trucks, and stored in above ground storage tanks.

2.8 Labor requirements during construction and operation

The direct labor force required for the civil works and construction of the plant is estimated to be approximately 40 unskilled workers who will be recruited by the local contractor mainly from Baidoa. In addition, a small team of technical, engineering and supervisory staff from outside of Baidoa will oversee the construction.

The operation of the plant is expected to require 10 full-time personnel. Additional temporary workers may be employed locally for panel cleaning and other maintenance services. Technical staff will come from outside of Baidoa to carry out maintenance, as required. The project will create local employment opportunities and will upgrade skills in the area. Proactive measures will be taken during operations to employ local technical and managerial staff to facilitate skills transfer, as well as to employ women, in both skilled technical and managerial roles and unskilled roles.

No special provision will be required for workers' accommodation during construction or operation. The majority of the workforce will be recruited locally from Baidoa and will stay in their own residences. The small number of engineering and supervisory staff who come from outside of Baidoa during construction and scheduled maintenance will be accommodated within the green zone at the UN accommodations. They will not leave the green zone.

Further details on the impact of the project on employment are discussed in Section 6, and the proponents' Human Resource and Health and Safety policies, including on equal opportunities, code of conduct, and the worker grievance mechanism, are in Section 8.

Section 3. Policy and Legal Framework

This section summarizes the E&S legislation and regulations pertaining to the project. First, it considers Somalia's federal policy and law pertaining directly to the ESIA and of broader relevance to the project. Second, it analyzes international standards and best practices that are relevant to the project, focusing specifically on the how the eight IFC Performance Standards apply to the project.

3.1 Federal and State Regulation Pertaining to ESIA

Environmental policy and legislation are currently under development in Somalia. Federal laws and regulations guiding ESIAs and providing a comprehensive framework for environmental management have yet to be adopted. The FGS has developed a National Environmental Policy which was approved by the Cabinet on February 13, 2020. This was the first time an environmental policy has been endorsed since the formation of Somalia's federal institutions. The National Environmental Act has been drafted and was approved by the Cabinet on

November 26, 2020. Both documents need to be approved by the Parliament in order to take effect. There is no clear timeline for their adoption.

At the Federal level, the Directorate of the Environment and Climate Change (DoECC) within the Office of the Prime Minister is mandated to draft the national environmental policies, regulations and laws including establishing Environmental Quality Standards, Sectoral Environmental Assessments, Environmental Impact Assessments and Environmental Audits. DoECC reports that it has developed draft ESIA standards, however these have yet to be approved by Parliament.

At the State level, the SWS Ministry of Environment and Tourism (MoE&T) manages environmental related issues and is the principal institution to be consulted on matters relating to possible environmental and social risks and impacts of development projects. The SWS MoE&T has confirmed that there are no State ESIA standards, policies and regulations currently in place. A draft SWS Environmental Code has been developed, but not yet approved by the SWS Parliament. The SWS MoE&T agrees with the approach of carrying out the ESIA based upon the IFC Performance Standards on Environmental and Social Sustainability (Performance Standards).

The project will apply good international industry practice standards and will be carried out in accordance with the IFC Performance Standards, the General Environmental Health and Safety (EHS) Guidelines, as well as the industry guidelines for Electric Power Transmission and Distribution.

3.2 Policy and legislation of relevance to the project

This section reviews policy, legislation and regulation that is relevant to the environmental and social aspects of the project. Overall, institutional and regulatory capacity for environmental and social governance remains limited and fragmented in Somalia, although significant efforts are underway to fill regulatory gaps and build institutional and technical competencies, with regional and international support.

3.2.1 Provisional Constitution of Somalia

Somalia's Provisional Constitution (adopted in 2012) reinforces the importance of environmental protection and the management of natural resources, especially Article 25 ("Environment"), Article 43 ("Land"), Article 44 ("Natural Resources") and Article 45 ("Environment"). Relevant provisions include:

- Article 25 affirms the rights of every Somali to "an environment that is not harmful to their health and well-being, and to be protected from pollution and harmful materials … and to have a share of the natural resources of the country, whilst being protected from excessive and damaging exploitation of these natural resources."
- Article 45 calls upon the Somali people to "participate in the development, execution, management, conservation and protection of the natural resources and environment."

- Article 43 affirms that the federal government shall give priority to the protection, conservation, and preservation of the environment against anything that may cause harm to natural biodiversity and the ecosystem.

The Constitution also provides the legislative framework for the protection of workers' rights, non-discrimination, promotion of human rights, and protection from GBV and gender discrimination in the workplace. Key provisions are found in Article 11 ("Equality"), Article 14 ("Slavery, Servitude and Forced Labor"), Article 15 ("Liberty and Security of the Person"), Article 24 ("Labor Relations") and Article 27 ("Economic and Social Rights"), including:

- Article 11 provides that "all citizens, regardless of sex, religion, social or economic status, political opinion, clan, disability, occupation, birth, or dialect shall have equal rights and duties before the law." It further states that "discrimination is deemed to occur if the effect of an action impairs or restricts a person's rights, even if the actor did not intend this effect." It also provides that the State must not discriminate against any person on the basis of age, race, color, tribe, ethnicity, culture, dialect, gender, birth, disability, religion, political opinion, occupation, or wealth – and that all state programmes shall be deemed not to be discriminatory.
- Article 24 enshrines every persons' right to fair labor relations and provides that "all workers, particularly women, have a special right of protection from sexual abuse, segregation and discrimination in the workplace. Every labor law and practice shall comply with gender equality in the workplace." It also provides for the right of every worker to form and join a trade union, to strike, as well as for workers, trade unions and employers to engage in collective bargaining on labor-related issues.
- Article 15 provides that every person has the right to personal liberty, security, and the right to physical integrity. This includes "the prohibition of illegal detention, all forms of violence, including any form of violence against women, torture, or inhumane treatment."
- Article 14 provides that "a person may not be subjected to slavery, servitude, trafficking, or forced labor for any purpose."
- Article 27 affirms every persons' right to clean potable water, healthcare, social security, and the fulfilment of Constitutional rights. It also states that "It shall be ensured that women, the aged, the disabled and minorities who have long suffered discrimination get the necessary support to realize their socio-economic rights."

3.2.2 Somalia's Ninth National Development Plan

Somalia's ninth National Development Plan (NDP-9),[3] covering the period between 2020 and 2024, identifies recurrent drought, climate change and environmental degradation as major causes of poverty and food insecurity in Somalia. Strengthening the management of the environment and natural resources is identified as one of six priority cross-cutting themes in

[3] The NPD-9 is available here: http://mop.gov.so/wp-content/uploads/2019/12/NDP-9-2020-2024.pdf

the NDP-9. The plan also identifies strengthening gender and other kinds of social equity as a priority cross-cutting theme.

The NDP-9 identifies increasing the supply of energy, especially from renewable sources, as well as energy market regulatory reform as development priorities. It identifies the unregulated production and supply of power, with little or no quality control, as a major economic policy, development and environmental challenge. This has led to an energy sector dominated by private actors and contributes to very high electricity prices. As a result, Somali citizens depend upon charcoal and wood for fuel, which is decimating the forest stock. Access to energy is identified as a key constraint to economic growth and poverty reduction across multiple sectors – for example it is a bottleneck to developing livestock value chains upon which rural livelihoods depend. The NPD-9 therefore prioritizes investment in the energy sector and the development of energy market regulation as key accelerators for development.

Somalia plans to increase the supply of renewable energy, and to establish regulatory authorities and a legislative framework to improve the market efficiency, in the with the Power Master Plan (PMP), which has been developed with support from the World Bank. The PMP identifies supply-side challenges as a key issue, including that Somalia's electricity generation capacity is insufficient to meet current loads. It also highlights the importance of reducing dependence on fossil fuels and diversifying the energy portfolio to include wind and solar. According to data collected for the PMP, Somalia consumes in excess of 121,000 liters of diesel fuel per day to support its installed generation capacity – and this is projected to grow to 694,000 liters per day with growing demand linked with increasing urbanization. This underscores the importance of increasing its electricity generation capacity.

The NPD-9 also identifies renewable energy as one of many potentially labor-intensive sectors (including light manufacturing, construction, and primary production systems including livestock, agriculture and fisheries) that can generate employment and accelerate inclusive growth, with a particular emphasis on creating opportunities for women and young people.

3.2.3 Environmental Protection and Land Use Policy and Regulation

Federal oversight of environmental protection and natural resources in Somalia remains limited and the policy and regulatory framework is under development. As mentioned above, the National Environmental Policy and Act have been developed and approved by Cabinet, but not yet been passed by Parliament. A Climate Change Policy has also been developed. There is currently no Federal land law in place or under development. Standards and regulations pertaining to environmental pollution prevention and control, including hazardous substances, solid and liquid waste management, water quality, air quality, and noise, have not yet been formulated or approved. At the State level, the SWS MoE&T has the mandate to supervise and co-ordinate all matters relating to the environment, however as discussed in Section 3.1, state-level environmental regulations and oversight mechanisms are not yet in place.

The SWS Ministry of Public Works, Reconstruction and Housing (MPWRH) is responsible for overseeing urban planning and establishing relevant policies and regulations. It is currently taking steps towards developing the urban planning framework for Baidoa with support from

UN-Habitat. The Urban Land Code has been developed and was approved by the SWS Parliament and signed by SWS President in March 2022. The Act defines public and private land as well as the roles of the State and District administration in the allocation of public land. It sets out responsibilities, processes and procedures for the allocation of public land for projects that are in the public interest by the government. It also defines the procedures for the lease of public land. The Act establishes a State Committee on Urban and Land Planning, a State Land Registry and other bodies which have responsibilities related to its operationalization. Now that it is in force, it will take time to be functional, including establishing the necessary committees and special offices to oversee it and developing associated standards and technical guidelines.

Baidoa is the interim capital of SWS and the temporary administrative headquarters of the SWS Government. Baidoa is classified as a district. The District Council is currently being formed, and the governance structures, regulations, technical capacity and systems are not yet in place to enable it to perform its mandated functions. The Local Government Law of Southwest State of Somalia (Law No 10 of 3rd July 2017) defines the District Council's responsibility to include: environmental protection and disaster prevention, town planning, promotion and regulation of economic activities, provision, maintenance and operation of basic urban services, provision and administration of public housing and facilities. The use of instruments such as zoning and land use planning is largely absent in Baidoa. The project site is public land that falls under the jurisdiction of the SWS, rather than Baidoa district, due to its use for military purposes and the presence of the airport

3.2.4 Labor and Employment Law

The Labor Code of Somalia (Law Number 65, adopted in 1972) governs all aspects of labor and working conditions, covering the contract of employment, terms and condition, remuneration, and occupational health and safety, trade unions, establishing labor authorities, and maternity leave.[4] Although currently in force, the Labor Code (1972) is being reviewed to bring it in line with the Provisional Constitution and International Labor Organization (ILO) conventions that are in force in Somalia (detailed in Section 3.2.8 below). The Federal Ministry of Labor and Social Affairs is currently reviewing the Labor Code (1972) with support from the ILO. The revised draft Labor Code was finalized in a workshop in February 2019 by representatives from various Federal ministries, all Federal Member States, employers, workers, and academia. It currently awaits Parliamentary approval. The Labor Code (1972) continues to be applicable until the revised code becomes the law.

SWS has developed a Non-Governmental Employees Act that was approved by the SWS Parliament in February 2022 and has been signed by the SWS President. The SWS Ministry of Labor and Social Affairs reports that they will apply the SWS Labor Code (2022) in administration of labor matters at the State-level. However, the Act states that it will come into

[4] The key provisions of Somalia's Labor Code are contained in this World Bank document: http://documents1.worldbank.org/curated/en/832131584717791524/pdf/Labor-Management-Procedures-Somali-Integrated-Statistics-and-Economic-Planning-Capacity-Building-P171160.pdf)

force when signed by the President of the FGS and issued as an official publication of SWS, and this has not yet taken place.

3.2.5 Policy and Law on Gender Equality and GBV

Somalia's National Gender Policy (2016) has been approved by the Federal Council of Ministers. The goal of the policy is to promote gender equality and sustainable human development in Somalia by ensuring that equal value is placed on the contributions of women and men as equal partners in the areas of economic empowerment, education, health and political transformation. It is intended to guide further policy, legislation and programmes to promote equal opportunities for men and women in all spheres of life, and sets out gender priorities in the areas of health, education, economic empowerment, political participation.

The policy identifies creating economic opportunities for both men and women, especially to improve the economic status of men and women in rural areas, as a priority. This includes prioritizing the establishment of vocational, entrepreneurs and skills enhancement programs and training for women and men, including those with disabilities, among other areas.

The federal legal framework for addressing GBV is under review. The FGS has drafted the Sexual Offenses Bill (2017) with support from the UN, which has been tabled with the Parliament and is still under review. The pre-existing Penal Code (1962) includes some provisions relevant to addressing GBV, including criminalizing rape, but it does not provide an adequate legal framework for dealing with GBV cases.[5] In practice, most GBV cases are dealt with by the customary system (discussed further in Section 3.2.7 below).

3.2.6 Energy Policy and Regulations

There is currently no energy policy or electricity regulatory framework in place in Somalia. However, as discussed above, the FGS has prioritized the development of an energy policy, strategy, and regulatory framework, in line with the NPD-9 and PMP, and several policies and laws are currently under development. The Federal Ministry of Energy and Water Resources (MoEWR) has the mandate to oversee operations in the electricity sector. The Federal MoEWR developed a draft Energy Policy in 2018[6] and is currently drafting an Electricity Act and Regulations to provide a comprehensive framework of the sector. The World Bank, African Development Bank (AfDB), and United States Agency for International Development (USAID) are among the development partners supporting Somalia to implement the PMP, including providing technical assistance and institutional capacity building for Somali public energy agencies.

In the interim and until this is developed, there is a regulatory and policy vacuum for the sector. In the absence of regulations, standards and codes of practice, there is no mechanism to vet and enforce electricity services quality, health and safety standards. This is compounded by the

[5] See UNDP, UN Women, and UNFPA, 2018. Somalia Gender Justice and the Law. Available at https://www.undp.org/content/dam/somalia/docs/Project_Documents/Womens_Empowerment/Gender%20in%20Somalia%20Brief%202.pdf for a review of the Penal Code (1962) provisions relevant to GBV.

[6] MoEWR 2018. Draft Energy Policy. https://moewr.gov.so/wp-content/uploads/2019/03/DRAFT-OF-ENERGY-POLICY.pdf

limited capacity of federal and state institutions to develop, enforce and monitor the sector. Federal and State MoEWR are mandated to issue operating licenses to energy service providers, however there are no licensing guidelines and there is not yet any legal basis to regulate their operations once licenses are granted.

3.2.7 Customary xeer legal system and sharia law

Somalia's legal system consists of three main sources of law: civil law, sharia law and customary law. The Provisional Constitution (2012) sets out Somalia's federal structure and defines the hierarchy of laws in Somalia, stating: "After Shari'ah, the Constitution of the Federal Republic of Somalia is the supreme law of the country." According to the Constitution, laws and administrative actions that are contrary to the Constitution can be invalidated by the Constitutional Court, and laws that are not compliant with the general principles and objectives of sharia cannot be enacted. In practice, civil law, sharia law, and customary law often exist in parallel and the legal systems relied upon and enforced vary between regions and areas of the country.

In the context of weak formal regulation, customary authorities and the customary legal system serve an important function in land rights and related resource management issues. Much of Somalia continues to rely upon the customary *xeer* system to govern property, land rights and resource use, to enforce contracts, and to resolve disputes. There are variations in the interpretation, application, and effectiveness of *xeer* across different regions, clans and groups within Somalia, however it is applicable in much of the country. The *xeer* system is compensatory rather than punitive in nature, majoritarian meaning decisions are based on consensus among the major parties, utilizes a system of clan insurance whereby clans insure against violations of decisions reached, and it has a relationship to Sharia law. Under the system, elders act as judges or mediators to resolve cases, taking precedent and custom into account.

The customary xeer system also handles most cases of sexual violence and GBV. The FGS and some Federal Member States are making efforts to reintroduce common law courts, but the capacity of and trust in the formal justice system remains weak, and the customary system functions in parallel to state law. A number of customary practices go against basic human rights standards and serve to revictimize GBV survivors, for example crimes of rape are commonly resolved through the marriage of the victim to the perpetrator, and revenge and honor killings are tolerated.[7] Numerous cultural, religious and institutional barriers limit women's access justice, including fear of punishment, reprisals and harassment for reporting GBV incidents, and social stigma.[8]

In Al-Shabaab controlled areas, a strict version of sharia law has been imposed, including severe restrictions on women's behavior, freedom of movement, reproductive rights, and access to

[7] See UNDP, UN Women, and UNFPA, 2018 for further discussion of how the customary system handles GBV cases as well as other barriers to access to justice for GBV survivors.
[8] UNDP, UN Women, and UNFPA, 2018.

the public sphere. The exclusive influence of sharia courts has decreased in recent years, however the judiciary in most areas relies upon a combination of xeer, sharia and civil law.

3.2.8 International conventions and agreements ratified by Somalia

Somalia is signatory to a number of international treaties, conventions and agreements that include legally binding commitments to protect the environment and to ensure the sustainable management of natural resources. These include:

- **The UN Framework Convention on Climate Change (UNFCCC)** (ratified in 2009). The primary objective of the Convention is to stabilize greenhouse gas concentrations "at a level that would prevent dangerous anthropogenic (human induced) interference with the climate system." Somalia submitted its new climate action plan (Intended Nationally Determined Contribution) to the UNFCCC in 2015. Somalia has also developed the National Adaptation Program of Action on Climate Change (NAPA), which includes a climate risk assessment.[9]
- **The UN Convention to Combat Desertification (UNCCD)** (ratified in 2002). The Convention combats desertification in those countries that experience serious droughts and/or desertification. Somalia has developed a National Action Programme for the UNCCD.[10]
- **United Nations Convention on Biological Diversity** (ratified in 2009). The Convention has three main goals: the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising from genetic resources.
- **Convention on the Conservation of Migratory Species of Wild Animals** (ratified 1985). This Convention aims to protect those species of wild animals that migrate across or outside national boundaries from becoming endangered.

  Regional Convention for the Conservation of the Red Sea and the Gulf of Aden Environment (ratified 1988). The objective is to undertake all measures to conserve the Red Sea and Gulf of Aden environment, including to prevent, abate and combat marine pollution from all sources.

  Protocol concerning Regional cooperation in Combating Pollution by Oil and other Harmful Substances in Cases of Emergency (ratified 1988). Combats pollution by oil and other harmful substances by enhancing measures for responding to pollution emergencies on a national and regional basis.

Somalia is also signatory to 13 International Labor Organization (ILO) Conventions that include legally binding commitments relevant to labor and employment conditions and the social

[9] The Somalia National Adaptation Programme of Action is available here: https://www.wiomsa.org/download/national-adaptation-programme-of-action-somalianapa/
[10] The Somalia National Action Programme on UNCCD is available here: https://knowledge.unccd.int/sites/default/files/naps/2018-06/NAP%20Full%20Report%20-%20Final%2023%20May%20digital.pdf

aspects of the project. These include commitments on equal opportunities for women in employment, ending violence and harassment in the workplace, workplace health and safety, ending child and forced labor, among other areas. These include:

- **Discrimination (Employment and Occupation) Convention (No. 111)** (ratified in 1961). This commits countries to pursue a national policy designed to promote equality of opportunity and treatment in respect of employment and occupation, with a view to eliminating any discrimination, where discrimination includes "any distinction, exclusion or preference made on the basis of race, color, sex, religion, political opinion, national extraction or social origin, which has the effect of nullifying or impairing equality of opportunity or treatment in employment or occupation."
- **Forced Labor Convention (No.29)** (ratified in 1960). This aims to end all forms of forced labor, defined as "all work or service which is exacted from any person under the menace of any penalty and for which the said person has not offered himself voluntarily".
- **Freedom of Association and Protection of the Right of Organize Convention (No. 87)** and **Right to Organize and Collective Bargaining Convention (No.98)** (ratified in 2014). Ensures the right of both employers and employees to join an organization of their choice, and to exercise freely the right to organize and engage in collective bargaining. Ensures workers protection from discrimination for their membership or engagement in union activities.
- **Abolition of Forced Labor Conventions (No. 105) (ratified in 2014).** Commits countries to take effective measures to secure the immediate and complete abolition of forced or compulsory labor.
- **Worst Forms of Child Labor Convention (No. 182) (ratified in 2014).** Calls for countries to take immediate and effective measures to prohibit and eliminate the worst forms of child labor.
- **Violence and Harassment Convention (No 190)** (ratified in 2021). Commits member countries to adopt laws and regulations to prohibit, prevent and provide remedies for violence and harassment in the world of work, including gender-based violence and harassment.
- **The Tripartite Consultation (International Labor Standards) Convention (No. 144) (ratified in 2021).** Member countries undertake to operate procedures which ensure effective consultations between representatives of the government, of employers and of workers on matters concerning ILO activities.
- **The Occupational Safety and Health Convention (No. 155)** and **Promotional Framework for Occupational Safety and Health Convention (No. 187) (ratified in 2021).** Member countries shall formulate and implement a policy on occupational health, safety and working environment, and shall promote continuous improvement of occupational health and safety through a national system and programmes.

- **Private Employment Agencies Convention (No. 181)** (ratified in 2021). Establishes the general parameters for regulation of recruitment, placement and employment of workers engaged by private employment agencies
- **The Migration for Employment Convention (Revised) (No. 97)** and **Migrant Workers (Supplementary Provisions) Convention (No. 143)** (ratified in 2021). Sets out measures that member states should take in order to safeguard the rights of migrant workers and to promote equality of opportunity and treatment for migrant workers and their family members.

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Table 1: Summary of legal, policy, regulatory frameworks

Legislation, Policy and regulations	Environmental requirements	Relationship to the project
Legislative frameworks		
The Constitution of Somalia, 2012	Somalia's Provisional Constitution (adopted in 2012) reinforces the importance of environmental protection and the management of natural resources, especially Article 25 ("Environment"), Article 43 ("Land"), Article 44 ("Natural Resources") and Article 45 ("Environment").	The project contributes to protection of the environment and climate change mitigation by increasing electricity generation capacity from solar and reducing GHG emissions. The project is in a built-up area and the physical components and construction process have minimal adverse local environmental impact. An ESMP will be put in place to manage any environmental risks.
	Somalia's Provisional Constitution provides a framework for labor and social issues, including protecting women's rights and equal opportunities in the workplace, and protections against violence including GBV in the workplace, especially Article 11 ("Equality"), Article 14 ("Slavery, Servitude and Forced Labour"), Article 15 ("Liberty and Security of the Person", Article 24 ("Labor Relations").	Labor and social aspects of the project will adhere to the Provisional Constitution.
Labor Code (1972)	This law has been revised and is awaiting approval by Parliament. It includes provisions, among others: contracts of employment, remuneration, conditions of work, occupational health and safety, administering authorities and method of implementation, and settlement of labor disputes. SWS has passed the Non-Governmental Employees Act (2022), however this requires signature by the FGS President to come into force.	The proponent will apply the Labor Code (1972) until the revised federal Labor Code and/or the SWS Non-Governmental Employees Act come into force. It will also adhere to the principles of the ILO conventions ratified by the government of Somalia, and the relevant provisions of the Constitution, when dealing with work and labor aspects of the project.
SWS Urban Land Code (2022)	The law was enacted by the SWS government in March 2022. It sets out procedures for the allocation of public land for projects that are in the public interest. It also sets out the	Project proponents are clarifying what the processes and procedures will be to adhere to this, taking into

	procedures for the lease of public land. Committees and offices required for the implementation of the law, such as the State Land Registry, are not yet operational.	consideration that the MOU and the land lease agreement was entered into before the law was passed by the SWS government.
Key National Strategic Plans		
Somalia's ninth National Development Plan (NDP-9)[11]	NPD-9 recognizes the supply of and access to renewable energy as a development priority. Somalia plans to increase the supply of renewable energy, and to establish regulatory authorities and a legislative framework to improve the market efficiency. Environment and gender, human rights and social equity are cross-cutting issues.	The project will support the NDP-9 aims of increasing electrical generation capacity from renewable resources and reducing tariffs, thereby contributing to human and economic development.
Somalia's Power Master Plan, 2018	Developed by government of Somalia in coordination with the World Bank, the PMP seeks to create an enabling environment for independent power producers and the policy, legal and regulatory framework for the sector.	The proposed project will be a forerunner for independent renewable power producers and will serve as a model for similar renewable energy plants in other locations in Somalia.
Somalia's Intended Nationally Determined Contributions (Indcs), 2015	The report notes that Somalia has vast untapped renewable energy resources, stating that average solar potential stands at 5-7 kWh/ m^2/day.	The project will reduce GHG emissions, helping Somalia meet its Paris agreement commitments.
Draft Energy Policy, 2018	There is currently no energy policy or regulatory framework in place, and no guidelines for licensing of private power companies. However, the draft policy notes that access to energy is vital for economic and human development and identifies solar energy as one of the resources to be tapped. Under electricity generation, the government aims to boost partnerships with private sector and international organisations to increase electricity generation.	Kube Energy Somalia is registered both at the State and Federal levels. No further licenses are required at Federal level. The GoSWS has provided all of the necessary permits and licenses to Kube Energy Somalia to build and operate the plant and mini grid.
Key Multilateral Environmental Agreements		
The United Nations Convention on biological diversity (CBD), 1992	Article 8 – In-situ conservation (d) Promoting protection of ecosystems, natural habitats and maintenance of viable populations of species in natural surroundings (j) Respecting, preserving and maintaining knowledge, innovations and practices of indigenous and local communities	The project will not adversely affect biological diversity since the site is in an already built-up area. Implementation of the project will help mitigate

[11] The NPD-9 is available here: http://mop.gov.so/wp-content/uploads/2019/12/NDP-9-2020-2024.pdf

	embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application.	climate change a key driver of biodiversity loss.
The United Nations Framework Convention on Climate Change (UNFCCC), 1992	This convention sets out the framework for combating climate change and is also a key guide in formulation of policies and agreements aimed at climate change mitigation and adaptation. Parties to the UNFCCC are required under Article 6, to foster education and awareness on climate change.	The project will provide 80% electricity from solar array replacing existing diesel power generation and thereby cutting GHG emissions.
Sustainable development goals (SDGs) and agenda 2063 in Africa	Key targets of the SDG 7 – Ensure access to affordable, reliable, sustainable and modern energy for all – are by 2030, ensure universal access to affordable, reliable and modern energy services	Implementation of the project will contribute increased renewable energy generation capacity in Somalia. This is one barrier to increasing affordable access to electricity. However, the project, in itself, will not automatically increase access to electricity for households as this also depends on the tariffs, distribution networks, and regulatory frameworks that are beyond the scope of the project itself. It is hoped that the project will generate interest in and incentivize complementary investment and intervention in the energy sector by the government, development partners, and private sector in Baidoa to expand access to electricity in the city. It is also hoped that it will provide a model for solar power plants in other locations within Somalia.
ILO conventions	Somalia has ratified 13 ILO Conventions (detailed in Section 3.2.8 above).	Project implementation will adhere to the principles of the ILO conventions ratified by Somalia. This includes that: Contractors will be obliged to have policies and procedures in place to ensure equal opportunities for and treatment of employees regardless race, color, gender/sex, religion,

		political opinion, or social origin, that employment practices are non-discriminatory, and to take active measures to prevent and violence, harassment and discrimination in the workplace; and that they will be obliged to adhere to workplace health and safety standards. Contractors and suppliers will be contractually obligated to comply with the required local and international practices, to have a human rights policy, and to have employment processes that provide the standard terms of employment for casual and temporary workers.

3.3 Performance Standards

The IFC/MIGA Performance Standards provide guidance on managing social and environmental risks and serve as a benchmark for international industry good practice. They are also a requirement for projects proposed for IFC/MIGA financing or guarantees. Projects should also be executed in accordance with the General EHS Guidelines, which outline international industry good practice, and contain performance levels and measures that are typically achievable in new facilities at reasonable costs with existing technology. Table 2 analyzes the relevance of the Performance Standards to the current project.

Table 2. Relevance of the Performance Standards to the project

PS 1: Assessment and Management of Environmental and Social Risks and Impacts	
PS 1 establishes the importance of: (i) integrated assessment to identify the environmental and social impacts, risks, and opportunities of projects; (ii) effective community engagement through disclosure of project-related information and consultation with local communities on matters that directly affect them; and (iii) the client's management of environmental and social performance throughout the life of the project.	*PS 1 is relevant to most projects and applies to the current project. As a greenfield development, the project should undertake a full ESIA. It will establish an Environmental and Social Management Plan (ESMP) that is appropriate to the nature and scale of the project and commensurate with its risks and impacts. This will include a stakeholder engagement process focused upon building constructive relationships that are important to the successful management of the project and its environmental and social impacts. The project does not include specific physical*

	elements, aspects or facilities that are likely to generate adverse environmental or social impacts to local communities (Affected Communities).
PS 2: Labor and Working Conditions	
PS 2 focuses on the protection of basic rights of workers and the establishment of a sound worker-management relationship. The objectives are: • To promote fair treatment, non-discrimination, and equal opportunity of workers. • Establish, maintain, and improve the worker-management relationship. • To promote compliance with national employment and labor laws. • To protect workers, including vulnerable categories of workers such as children, migrant workers, workers engaged by third parties, and workers in the client's supply chain. • To promote safe and healthy working conditions, and the health of workers. • To avoid the use of forced labor.	*PS 2 applies to employment and working conditions in all phases of the project and includes requirements with respect to direct workers, contracted workers, and supply chain workers. The ESIA will review applicable laws and international standards and outline required policies, procedures and mechanisms related to labor and working conditions in the ESMP.*
PS 3: Resource Efficiency and Pollution Prevention	
PS 3 focuses on the prevention and control of pollution to air, water, and land, and on promoting the sustainable and efficient use of finite resources. The objectives are: • To avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities.	*PS 3 applies to potential emissions and wastes produced during construction and operation of the plant and their potential impacts, as well as the use of resources in all phases of the project. The ESIA will refer to EHS guidelines and Good International Industry Practice (GIIP) to evaluate risks and select resource efficiency and pollution control techniques for the project.*

• To promote more sustainable use of resources, including energy and water. • To reduce project-related GHG emissions.	
PS 4: Community Health, Safety and Security	
PS 4 recognizes that project activities, equipment, and infrastructure can increase community exposure to risks and impacts. Impacts may arise from equipment accidents, structural failure, hazardous materials, exposure to diseases and the use of safety and security personnel. While acknowledging the public authorities' role in promoting the health, safety, and security of the public, this PS addresses the client's responsibility to avoid or minimize the risks and impacts to community health, safety, and security that may arise from project related-activities, with particular attention to vulnerable groups.	*PS 4 applies to the current project. The power plant will be located within the protected 'green zone' where access is restricted, limiting potential hazards to local communities. Extra attention will be paid to community health and safety risks that could be elevated as the project is being implemented in a fragile and conflict-affected context with a weak regulatory environment and limited public services. The ESIA will assess risks to community health, safety and security and will include mitigation measures in the ESMP.*
PS 5: Land Acquisition and Involuntary Resettlement	
PS 5 recognizes that project-related land acquisition and restrictions on land use can have adverse impacts on communities and persons that use this land. It focuses on avoiding or minimizing displacement or other adverse social and economic impacts from land acquisition or restrictions on land use.	*PS 5 does not apply to the project since the activities will not involve any involuntary resettlement or change in land use.*
PS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	
PS 6 focuses on protecting and conserving biodiversity, maintaining ecosystem services, and sustainably managing living natural resources.	*PS 6 will be considered as part of the ESIA although there are no significant risks or adverse impacts expected. The site is within an already built-up airport complex within an urban area and is not located near any*

	protected areas or unique habitats. As part of the ESIA, the biological baseline in project site and surrounding area will be described and any potential impact on biodiversity and ecosystem services in the surrounding area will be considered.
PS 7: Indigenous Peoples	
PS 7 focuses on preventing adverse impacts on communities of indigenous peoples and to provide opportunities for development benefits.	*PS 7 does not apply to this project as there are no indigenous peoples in the area.*
PS 8: Cultural Heritage	
PS 8 focuses on projecting cultural heritage from adverse project impacts and on promoting cultural preservation.	*PS 8 is considered as part of the ESIA, however no cultural heritage components are expected. There are no designated sites of archeological or cultural importance within or near the project site. A 'chance finds' procedure will be part of the project's ESMP.*

Section 4. Environmental and Social Baseline

4.1 Physical and biological environment

This section describes the main physical and biological characteristics at the project site and within the project's area of influence.

Climate and extreme weather events

Baidoa is characterized as a moist semi-arid climate. There are two rainy seasons of 30-90 days each, the main (Gu) in the spring (April-June) and the second (Deyr) in the autumn October-December. The mean annual rainfall is 500-600 mm.[12] Temperatures are hot and relatively consistent year-round, with average daily high temperatures close to or over 90°F over the course of the year, and average daily low temperatures above 67°F. Baidoa is over 200 kilometers from the nearest reliable weather station located in Mogadishu.

Somalia has experienced a number of extreme weather events including drought, floods, and storms, including dust storms, winds and cyclones. Drought and floods have been the most frequent and significant disasters affecting Baidoa and surrounding areas in recent years.

[12] FAO Somalia Water and Land Information Management (SWALIM), (2009), Land Resources Assessment of Somalia, available at https://edepot.wur.nl/484553

Flooding of the Jubba and Shabelle rivers often occur during the Gu rainy season in the Hiran and Middle Shabeelle regions, while the Baidoa area has been affected by flash floods during heavy rains. Somalia is affected by recurrent, severe drought, which alongside the conflict, has been an important driver of internal displacement to Baidoa from rural areas. The severity and frequency of drought and flooding associated with extreme rainfall has increased in recent years – a trend that is connected to climate change and that is predicted to become more frequent in the future as temperatures rise.

Topography, Geology and Hydrology

Baidoa is located at an altitude is approximately 440 meters above sea level. It is situated on the edge of the Shebelle River Basin to the east and the Juba River Basin to the west. Baidoa itself drains into the Shebelle River Basin. The Isha spring is the main source of surface water in Baidoa, located in the center of town. The spring used to flow into the local channel, however the water output has dramatically reduced in recent years and it also has been heavily polluted due to dumping of household waste water, solid and liquid waste.

According to the Baidoa Water Supply Master Plan (2019) developed with support from UNICEF, Baidoa has a high potential availability of underground water sources due to the ground formation being mostly limestone, although salinity is a problem. The boreholes that are the main source of water for the city are primarily on the outskirts of town, and there are also shallow wells dug in urban areas. According to FAO data, the soils in the agro-ecological zone encompassing Baidoa are classified as nitisols, vertisols, and planosois. These are deep, clayey soils, some of which have poor drainage and high salt content.[13]

Isha spring, in the center of town, is the nearest surface and ground water source, located approximately 1 kilometer from the project site. There are no boreholes at the project site, and no plans to construct any boreholes as part of the project. Based on a preliminary site assessment, both riverine and overland flood risks are expected to be low due to the hydrological and physiographic characteristics of the site. Once a local contractor has been selected, an assessment of potential future flood risks to the site will be completed. This will include identifying if detailed hydrological studies are required and if the drainage design should be modified to improve flood resilience.

Biological environment/Habitats

The project site is located within an already built-up urban area next to the airport and ATMIS military structures. There are dirt roads running along the northern and eastern perimeter. The majority of the site has previously been cleared of vegetation by ATMIS, which has subsequently regrown. The existing vegetation cover at the site is degraded and in some cases absent due to vehicle traffic and previous use of the site by ATMIS for storage. There are some remnants of the foundations of structures previously used by ATMIS for storage, which have been removed. The existing vegetation at the site is dominated by grasses and woody shrubs. See Figure 4 for photos of the project area.

[13] FAO SWALIM (2009).

There is no unique biological diversity at the site and no species that are threatened from the perspective of biodiversity conservation. There are also no protected areas or areas with potential as future protected areas nearby or within the project's area of influence. The area to the north and west of the airport compound, outside of the green zone perimeter, is primarily agricultural land, while the area to the south is built-up residential areas of Baidoa.

Figure 4. Photos of the project area

4.2 Socio-economic characteristics

This section describes the socio-economic characteristics of the immediate surrounding area and the city of Baidoa.

Population

There is no current population data that is disaggregated by district covering Baidoa. According to the most recent Population Estimation Survey of Somalia carried out in 2014, the population of the Bay region as a whole was estimated to be 792,182, with an urban population of 90,642.[14] However, the population of Baidoa is estimated to have tripled from 2016 to 2018.[15]

The main driver of urban growth has been a large influx of IDP from rural areas due to insecurity and the 2017 drought. Baidoa has one of the largest caseloads of IDPs in the country. As of October 2021, there were 572 IDP sites and 475,035 displaced individuals living in settlements in and around the town, of which 228,017 were male and 247,018 were female.[16] As a result, the built-up area has expanded and the density of the city has increased.

The main clans are the Digil and Mirifle clans (also known as the Rahanweyn). The majority of the population is Muslim and there are a number of mosques and religious schools in the town.

Social and economic profile

Baidoa is an agricultural and livestock trade center with strong links to neighboring rural areas and to other cities. It is a center for sorghum farming and livestock breeding, raising and trade.

The IDP population in Baidoa lives in precarious conditions, with humanitarian needs classified as severe to extreme across nearly all sectors in 2022, including food security and livelihoods, nutrition, health, protection, education and water and sanitation.[17] The UN and international organizations play a central role in humanitarian assistance and service delivery to the IDP population, however the state of infrastructure and services in the IDP settlements remains poor. According to a 2019 survey, both acute and chronic malnutrition are prevalent in Baidoa, and there are high (over 30%) rates of stunting.[18]

Gender[19]

Somalia has made important progress on women's rights in recent years, however women and girls remain severely disadvantaged compared to men across multiple domains, including economic opportunity, education, and political participation. Women in Somalia experience higher unemployment rates than men: 74% for women and 61% for men. The Somali private sector is dominated by micro, small and medium enterprises of which women are often the main drivers, however women often have limited access to credit, technology and information.

[14] Baidoa Urban Profile (2020).
[15] World Bank (2019). Somalia Urban Resilience Project Phase II.
[16] Camp Coordination and Camp Management (CCCM) Cluster (2021). Verified IDP sites in Baidoa, October 2021. https://reliefweb.int/report/somalia/somalia-cccm-cluster-verified-idp-sites-baidoa-october-2021
[17] CCM Cluster (2022). Detailed Site Assessment, Baidoa district, Bay Region, Somalia, March 2022. https://reliefweb.int/sites/reliefweb.int/files/resources/REACH_SOM_Factsheet_DSA_Baidoa-March-2021-1.pdf
[18] Save the Children (2019). Smart Survey Draft Report for Baidoa.
[19] Data in this section from UN Somalia, Gender Equality Strategy (2018-2020).

There are low literacy levels for both women and men, which are even lower for women: only 26% of women can read and write compared to 36% for men. Somalia's maternal mortality rate is the highest in the world, at 1,600 per 100,000 live births – an indicator of their access to services such as healthcare.

Women and girls are vulnerable to gender-based violence (GBV) which are heightened due to the conditions during conflict and displacement. Of the reported GBV cases, 96% of survivors are women and girls whilst 76% are IDPs. Female genital mutilation (FGM) is widely practiced, with a prevalence of 98%, while the prevalence of child marriages is also high, with 45% of women aged 20 to 24 married before the age of 18.

Security

Over the last decade, southern Somalia has been dominated by two inter-related political and security efforts backed by key international and regional partners. The first is the formation of Federal and State government institutions based upon a political settlement between various clans and political factions. The second is transfer of territorial control from militant Islamists, the most prominent of which is the terrorist group Al-Shabaab, to legitimate government authorities. In 2009, Baidoa, which was then the temporary seat of the Transitional Federal Government, was captured by Al-Shabaab. Somali forces retook control of Baidoa with the support of Ethiopian forces in 2012. Since then, peacekeeping and Somali National Army (SNA) forces have ensured the security of the city. Somali and regional peacekeeping forces currently control the city and its immediate surroundings.

The security situation in Baidoa has gradually improved since 2012. However, inter-clan conflicts, crime and terrorist attacks continue to pose peace and security challenges. Al-Shabaab has been substantially weakened but maintains some capabilities. In 2020, there were several terrorist incidents targeting civilians within Baidoa city center, and there have also been attacks targeting AMISOM/ATMIS convoys on the main supply routes in the Bay region.[20] Within South West State, there have been a number of efforts to resolve inter-clan disputes and to pave the way for elections initially planned for 2020. Following a number of setbacks and delays, Somalia has accelerated the pace of its parliamentary (lower house) elections, which will lead to presidential elections, including concluding parliamentary elections in Baidoa in early 2022.

Roads

The main transport and supply route for Baidoa is the 280 km Mogadishu – Afgoi – Wenleweyn – Burhakaba – Baidoa road. This is a tarmac road but was built over 30 years ago and has not received proper maintenance.[21] The other roads within Baidoa and connecting Baidoa to other

[20] UN Security Council, Report of the Secretary General, Situation in Somalia, 13 August 2020. https://www.securitycouncilreport.org/atf/cf/%7B65BFCF9B-6D27-4E9C-8CD3-CF6E4FF96FF9%7D/S_2020_798_E.pdf

[21] WFP Logistics Cluster, Somalia Road Network. https://dlca.logcluster.org/display/public/DLCA/2.3+Somalia+Road+Network

areas of southern Somalia are gravel/dirt roads. There are a number of infrastructure projects planned to improve the road network in Baidoa,[22] and southern Somalia more generally.

Baidoa International Airport offers approximately two flights per day. Private airlines primarily offer domestic flights, with Mogadishu being the main destination. International flights are primarily operated by international humanitarian organizations.

Municipal water and sanitation services

According to the Baidoa Water Supply Master Plan (2019), Baidoa has a high potential availability of groundwater. However, access to clean water for the population is strained due the city's limited water infrastructure and management practices, combined with the impact of population growth, pollution, environmental degradation, and drought conditions. The main water sources for the town are boreholes located on the outskirts of the town, as well as unprotected shallow wells in town. Baidoa's piped water distribution is managed primarily by Warjiny Water Company, a public private partnership, as well as two other private water companies. As of 2019, Baidoa's piped water supply comes primarily from 11 deep boreholes plus the Isha Spring.[23] As of 2015, Warjiny's capacity was estimated at 1,500m^3 per day, which is below that required to meet the city's water demand. Since then, a number of new boreholes have been drilled and there are there are ongoing projects to drill additional boreholes and rehabilitate the water distribution network, in line with the Water Supply Master Plan.

Baidoa has limited sanitation infrastructure and the sector is largely unregulated. There are private service providers who collect and dispose of solid waste and domestic wastewater, however the city lacks infrastructure for waste recycling. Since 2019, UNICEF, the African Development Bank and other international organizations have made investments in water and sanitation infrastructure in Baidoa, with a particular focus on constructing latrines and access to sanitation for IDPs. A 2021 water and sanitation mapping found that the most common sanitation facilities in IDP areas are communal latrines. In addition, there was a high rate of latrines being poorly serviced and dysfunctional, and in some areas, there was lack of access to basic sanitation facilities entirely.[24]

Health facilities

Baidoa has two main hospitals, Bay Regional Hospital (near the GoSWS compound), and Bay Haw Hospital, in the northern part of town. These provide general and emergency services to the residents of Baidoa, and have been supported by international organizations such as UNICEF. In addition, Baidoa has primary health care facilities and maternal and child health centers managed by UN agencies including UNICEF and WHO, and international NGOs, such as World Vision, and the Ministry of Health in a number of locations throughout the city.

There is a UN level 2 hospital within the UN compound in Baidoa. The hospital provides a range of services to UN staff and contractors, including comprehensive emergency services.

[22] See Baidoa Urban Profile for a list of planned and completed infrastructure projects.
[23] Baidoa Water Master Plan, 2019.
[24] Baidoa WASH IDP Service mapping. The majority of IDPs (73% to 98% depending on the area) reported having access to communal latrines

Cultural heritage

While there are no known cultural heritage sites within Baidoa, pre-historic archeological sites have been discovered approximately 60 km southwest of Baidoa, in Buur Hebye and Gogoshiss Qabe. These include cemeteries, rock paintings and remnants of prehistoric settlements from the middle and late stone age. Burial sites which are among the earliest with grave artefacts discovered in the Horn of Africa sit on top of the mountain's peak. They were later made into Muslim holy sites and are the focus of annual pilgrimage.

Section 5. Stakeholder Consultations

5.1 Purpose and scope of the consultation process

Stakeholder consultations were carried out as part of the ESIA. The main goal of the consultation process was to engage with key stakeholders that have an interest in or may be affected by the project, to provide information, establish relationships and provide an opportunity for them to provide feedback during the planning and preparation stage of the project. The objectives of the process were to:

- Inform interested and affected stakeholders about the proposed project and planned activities, including its foreseen positive and negative impacts;
- Gauge community attitudes towards the project, identify potential project impacts on the community, and gather specific suggestions and concerns.
- Engage government entities whose area of responsibility is relevant to the project and gather specific comments, suggestions and concerns related to ES aspects;
- Establish communication channels between the interested and affected stakeholders and the project proponents, and define mechanisms to maintain stakeholder engagement in subsequent phases of the project, as well as a grievance mechanism.

The scope of the stakeholder consultation process was defined based upon the project's area of influence and its expected impacts. A total of approximately 27 individual interviews were conducted (some of which engaged more than one person) in February and March 2022.

- **Government** – This included federal, SWS, and municipal authorities whose area of responsibility is relevant to the project, including the Federal Directorate of the Environment and Climate Change (DoECC); the SWS Ministries for Energy and Water Resources, Public Works, Housing and Reconstruction, Labor and Social Affairs, Gender and Human Rights, Transport and Civil Aviation, Environment and Tourism, Commerce and Industry; and the Baidoa district administration.
- **Community representatives from Baidoa** – This engaged community leaders and representatives including from women's groups, a youth association, an IDP camp, the business community/chamber of commerce, and elders/clan leaders.

- **International organizations** – This included UN agencies whose mandate is relevant to specific aspects of the project.

5.2 Overview of issues raised

This section summarizes the perspectives of stakeholders gathered during the consultation process. A full report on the consultation process and issues raised is contained in Annex 1.

Consultations with government representatives

Overall, government representatives expressed support for the project and an interest in being engaged in its development. The SWS Ministries consulted saw the project as fitting with their long-term objectives and policies relating to the environment, economic growth, and infrastructure and services for SWS and Baidoa. Some of the positive impacts they identified included:

- Increasing electricity generation capacity in Baidoa, which will eventually be leveraged to expand energy access;
- Reducing GHG emissions and contributing to the government's environmental and climate change targets;
- Stimulating economic growth and development in Baidoa, including through job creation and by attracting private investment into Baidoa;
- Creating job opportunities especially for young men and women, which may help to reduce crime and high unemployment;
- Providing the GoSWS with a more reliable electricity supply for operations at a lower cost and addressing the problem of current frequent power outages, which will enable it to be more effective in carrying out its mandate and delivering services to the people;
- Generating revenue which will be used to rebuild Baidoa district.
- Improving Baidoa's infrastructure, especially with the hand-over of the power plant to the government.
- Serving as a model for other districts in Somalia.

Government representatives also raised specific suggestions and issues the project proponents should consider, and in some instances, requested further information. The issues raised and the response or follow up to those issues are outlined below:

- Information and updates were received about policies and regulations that are under development, as well as laws that have recently been passed, that are pertinent to the project. This included the recently passed SWS Urban Land Code and Employment Law, as well as ESIA and other environmental regulations that are under development.
- Questions were raised and suggestions were made relating to how the project manages waste generated during construction and operation of the plant, particularly e-waste, as well as Workplace Health and Safety issues.

- Specific requests were made for further information about the project site, as well as to share the ESIA and ESMP once it is completed.

Consultations with community representatives

Community representatives welcome the project. Generally, they viewed the development of energy infrastructure as a positive development for the district. They also did not see the planned works as posing risks to community safety or to other aspects of community life in Baidoa, particularly because the plant will be located within the green zone, where access is restricted. Community members highlighted the following positive impacts of the project:

- Creating of employment for those who will be hired as manual workers in the plant during construction and operation, especially for young people who are often involved in manual work;
- Benefiting local businesses and suppliers that will provide various services to the plant;
- Reducing air pollution and GHG emissions, and contributing to the protection of the environment;

Some community members had expectations that are beyond the scope of what the plant will deliver. This included that the project would directly lead to increased access to reliable, cheap electricity in the city and in the IDP settlements. They also made the following suggestions to enhance the positive impact of the project on the community:

- Ensure early planning and preparation for the hand-over of the plant to the local government;
- Invest in additional energy projects that would satisfy the energy needs of the residents of Baidoa;
- Provide power for 24-hour street lighting, which would improve security in remote areas, especially for women and from GBV;
- Create employment opportunities for particular groups, especially for women, youth and IDPs;
- Hold further information sessions with community members in a safe area outside of the green zone that community members can access.

Consultations with UN agencies

UN representatives highlighted that the project could provide a model for how the UN could reduce its own carbon footprint, as well as to increase the acceptance of solar as a component of peacekeeping and military energy systems. They also highlighted that the project will result in cost savings for the UN that could allow for funds to be reallocated to programmes that benefit local people. They noted that this project will both support the country efforts to fight climate change and achieve the Sustainable Development Goals (SDGs) while ensuring the UN meet its own sustainability targets. UN agencies also provided information about complementary initiatives in Baidoa and Somalia, which the project could potentially link with in the future.

5.3 Response and follow-up to the consultation process

The issues raised during the consultation process have informed the ESIA and the development of the ESMP for the project. The ESIA and ESMP will be publicly disclosed and available online. Physical copies of the Executive Summary will be available in both English and Somali at a publicly accessible location in town.

The project proponents will follow the Federal and SWS laws and regulations that are legally binding in SWS (detailed in Section 3). Because many relevant laws and regulations are under development, the project proponents will coordinate closely with the relevant government ministries and agencies on regulatory developments. Specific regulatory matters and information requests raised by the government during the consultations will be followed up directly with the respective ministries and government departments.

The plant will increase electricity generation capacity from renewable sources in Baidoa, however it will not automatically increase access to affordable and reliable clean energy for the city at large. Achieving this depends on other factors as well, including government regulation and management of the energy sector, and additional investment in power generation and distribution networks in the city. As discussed in Section 2, in line with Kube Energy Somalia's operating license, the plant will sell and distribute power to international organizations within and adjacent to the green zone. Any distribution of power generated by the plant outside of the green zone to a local entity must be via a locally registered utility company. Phase 1 of the development will mainly supply power to UNSOS and to the GoSWS. There is scope to expand the plant during Phase 2 to supply power to other entities, including potentially to a locally registered utility company that distributes power to local customers in Baidoa. It is hoped that this will help to incentivize regulation and further investments that will reduce energy costs and improve the reliability of energy supply for residents and businesses in Baidoa.

The contractor for the project will be required to have a recruitment process that ensures equal opportunities in employment. The Contractor will make information about open positions and the recruitment process publicly available as widely as possible through locally appropriate communication means, recognizing workers will need to pass a vetting process to enter the green zone.

Advance planning for the hand-over of the plant to the local government will be carried out prior to the hand-over through a hand-over strategy, which will include an environmental and social management component, to ensure smooth transfer of the facilities.

The project will update the Stakeholder Engagement Plan (SEP) to communicate and disclose project-related information to key stakeholders, and will also establish a Grievance Redress Mechanism (GRM).

Section 6. Environmental and Social Impacts and Mitigation Measures

6.1 Methodology

The ESIA identified potential positive and negative environmental and social impacts of the project, as well as potential impacts of the environment on the project. Potential risks were first identified, and then their significance was assessed. Finally, mitigation measures are proposed to minimize the negative effects of significant impacts.

The identification of potential impacts, the assessment of their significance according to pre-determined criteria, and the proposed mitigation measures take into account information collected from the physical site and surrounding areas within Baidoa, the stakeholder consultation process, secondary studies carried out by the project proponents or by others, and the professional judgement of the team carrying out the ESIA.

The findings are organized in three sections:

- Potential Positive Impacts of the Project
- Potential Negative Impacts of the Project and Mitigation Measures
- Potential Environmental Risks to the Project and Mitigation Measures

Assessment of potential negative impacts

The evaluation and assessment of impacts considers the interaction between the foreseen activities and requirements during construction and operations and the social and environmental receptors/resources. Taking into consideration the project location, the characteristics of the surrounding environment, the foreseen construction and operation process, and the IFC Performance Standards, potential negative impacts of the project in following areas were identified as relevant for the ESIA:

- Air Quality
- Waste
- Noise
- Soil Quality
- Water Resources, Water Quality and Wastewater
- Biological Environment
- Municipal Services
- Community Health and Safety
- Workplace Health and Safety
- Glare and Glint
- Cultural Heritage

Once project-specific risks were identified, potential impacts were assessed to determine their significance in relation to the following criteria: magnitude (the intensity or severity of the impact), areal extent (confined to the project site, affecting immediate surrounding area,

widespread), duration of the impact (temporary, reversable, permanent). Where risks are considered significant (moderate or major), the likelihood of occurrence given the controls in place was also considered as part of the assessment.

Impact significance and likelihood criteria

Significance	**Definition**
Negligible	Little or no change in natural environment or socio-economic conditions above baseline conditions.
Minor	Localized and temporary change, with negligible residual effects after recovery
Moderate	Localized change of high severity that is longer-lasting but reversable; or widespread change (affecting the surrounding area/communities) that is of lower severity.
Major	Widespread change that is of high severity.
Likelihood	**Definition**
Negligible	Almost impossible/unknown
Low	Very unlikely/very rare with controls in place
Medium	Infrequent with controls in place, but potentially more frequent with a failure of controls or safeguards
High	Routine or likely with controls in place

Where the assessment process identified significant risks, mitigation or enhancement measures are proposed to minimize the potential negative environmental and social effects. Minor risks are integrated within the management plans of the facility. Mitigation measures are either incorporated as an integral part of the project design or through environmental management and monitoring measures. As much as possible, prevention is favored over mitigation or compensation. The implementation and monitoring of the mitigation measures are outlined in the ESMP in Section 8.

6.2 Potential Positive Impacts of the Project

6.2.1 Reduced CO_2 and air emissions

The project contributes positively to reducing CO2 emissions and other noxious emissions associated with fuel combustion. It will replace electricity generation from diesel powered gensets with energy generated from renewable sources. Phase 1 of the plant has been modeled to displace 870,000 litres of fuel per year and to reduce CO2 emissions by 2,300 tons/year (further details on the performance of the plant in 6.3.1 below).

6.2.2 Development of Somalia's renewable energy infrastructure

The project directly contributes to the development of Baidoa's renewable energy generation capacity. The plant will become part of the city's long-term energy infrastructure, with

ownership transferred to the GoSWS after 15 years of operation. The plant may also promote and stimulate the growth of the solar industry in Somalia, through the transfer of knowledge and skills, as well as by providing a business model that can be replicated in other major towns in Somalia.

While the plant increases electrical generation capacity from renewable sources in Baidoa, other factors need to be in place in order to improve energy access in Baidoa at large. Phase 1 of the plant will supply power to UNSOS, the GoSWS and potentially other entities within the green zone. The plant will not distribute power directly to local customers outside of the green zone (the operating license does not allow this), however it could potentially supply power to a local utility company that services customers in Baidoa at large, with a possible expansion of the plant during Phase 2. This could potentially incentivize regulation and complementary investments that would expand energy access for households, businesses and other customers in the city.

6.2.3 Improved efficiency of off-takers operations

The project will provide off-takers with more reliable power, compared with the diesel-powered grid, enabling them to function more efficiently and effectively. In addition, off-takers will benefit from cost savings. These resources can potentially be reallocated towards programmes and services that will benefit the populations that they serve.

6.2.4 Creation of employment opportunities

The project will create local employment opportunities in Baidoa, both directly and indirectly. As outlined above, the direct labor force employed during the construction of the plant is estimated to create temporary jobs for approximately 40 unskilled workers who will be recruited locally from Baidoa. The contractors engaged in construction and operation of the plant will have a clear recruitment policy and will publicize information about open positions and the recruitment process through locally appropriate communication means, recognizing workers will need to pass a vetting process to enter the green zone. In addition, the use of secondary service providers during construction, may lead to indirect employment and opportunities for local businesses. The consultations indicated that the construction process may create particular opportunities for youth, who are often engaged in the construction sector.

The operation of the plant is expected to require 10 full-time personnel, while additional temporary workers may be employed locally for panel cleaning and other maintenance services. Proactive measures will be taken during operations to employ local technical and managerial staff to facilitate skills transfer, as well as to employ women, in both skilled technical and managerial roles and unskilled roles.

6.2.5 Increased government revenue generation

The project will contribute to government revenue in the form of tax revenue and land rental income.

6.3 Potential Negative Impacts of the Project and Mitigation Measures

6.3.1 Air quality

Construction Phase

Construction activities will result in localized, air quality impacts in the form of dust/particulate matter from earthworks, and gaseous emissions from construction equipment, transport vehicles, and generators used to supply electricity during construction. These impacts will be localized and temporary. Due to the distance between the project site and residential areas, dust and air emissions are expected to have a negligible impact on the surrounding communities. However, they will affect the workplace environment.

Operation phase

There are no GHG emissions associated with the operation of the PV plant, however the combustion process to run the diesel generators will generate air emissions. The overall effect of the project will be to reduce GHG emissions and other air emissions associated with fuel combustion, including particulate matter (PM), nitrogen oxides (NOx), and Carbon Monoxide (CO), compared with the current situation in which the entire UNSOS compound's electricity supply is powered by diesel generators.

Based upon the load estimates for Phase 1 and the plant design, the plant will displace 870,000 litres/year fuel and 2,300 ton/year CO_2 with renewable energy (RE). The overall plant performance has been modeled as follows:

Power Plant parameter	Value
Total Load	4,600MWh/yr
Total Generation (incl. auxiliaries and losses)	4,800MWh/yr
Total Thermal Production	1,900MWh/yr
Total RE production (Solar PV + BESS)	2,900MWh/yr
Fuel consumption (actual)	570,000litre/yr
Specific fuel consumption (thermal only)	0.3litre/kWh
Fuel displaced by RE	870,000litre/yr
Hybrid Plant specific fuel consumption	0.12litre/kWh
CO_2 emissions (actual)	1,500Ton/yr
CO_2 displaced	2,300Ton/yr

The plant will include 3 diesel gensets (500 kva) with a total rate heat input capacity of 1.2 Megawatts Thermal (MWth). The manufacturer's specifications for the fuel efficiency and emissions profile for the gensets proposed for use in the power plant are:

Generator Set Package Performance		
Genset Power rating @ 0.8 pf	500 kVA	
Genset Power rating with fan	400 ekW	
Fuel Consumption		
100% load with fan	102.0 L/hr	26.9 Gal/hr
75% load with fan	76.2 L/hr	20.1 Gal/hr
50% load with fan	54.0 L/hr	14.3 Gal/hr

Emissions (Nominal)[3]	
NOx mg/nm3	3438.4 mg/nm³
CO mg/nm3	170.2 mg/nm³
HC mg/nm3	5.3 mg/nm³
PM mg/nm3	7.9 mg/nm³

Mitigation Measures

Construction phase

The contractors' scope of work will include measures to minimize the potential impact of dust and air emissions on the health and safety of workers. These will include:

- Dust management and suppression techniques such as covering excavated materials, sprinkling with water and maintaining vegetation to reduce potential for windblown matter.
- Areas to be cleared of vegetation or topsoil shall be cleared only when required.
- Teams to wear dust masks as part of the recommended PPE where applicable.
- Teams to implement a Journey Management Plan.
- Vehicle speeds should be limited to 30km/h on unpaved surfaces.
- Ensuring vehicles and machinery are maintained in good working condition to reduce noxious emissions and exhaust.

Operation phase

The developers and the contractors responsible for the construction and day-to-day operation of the plant will carry out measures to monitor and minimize air emissions. These include:

- Emissions monitoring through theoretically quantifying the emissions using the generator's efficiency and the quantity and type of fuel used.
- Maintaining gensets in good working condition to improve efficiency and minimize emissions.
- Remote monitoring and optimization of the plant to minimize running of back-up generators and fuel use.
- Ensuring fuels are stored in covered/sealed containers and safely handled on site to minimize spills or leakage and to avoid potential fugitive air emissions.

6.3.2 Waste

Construction and Operation phase

The construction process will generate waste that includes: packaging and wood scrap waste, unused construction materials and off-cuts, civil wastes such as sand, cement, and aggregates, as well as waste from the workforce. Excavated materials generated will be re-used for site filling and leveling. Wastes generated during construction and operation of the plant will also include small quantities of hazardous wastes such as oils used in the maintenance of equipment, and human waste from the workforce.

Wastes generated during the operation and maintenance of the plant will include e-waste, such as damaged solar panels and obsolete batteries and electronics. The productive lifetime of solar PV equipment is typically greater than 30 years. The solar PV panels have a 20-year performance guarantee, after which they will continue to produce electricity, but the level of output is no longer guaranteed by the manufacturer. The productive lifetime of the solar panels and other electrical equipment will be maximized to reduce equipment disposal rates, including through good maintenance practices.

There are commercial waste disposal operators in Baidoa, however recycling facilities do not currently exist. Somalia does not currently have facilities for the recycling of e-waste, however facilities for this are being established in several countries in the region. There are also not currently qualified commercial or government waste vendors for hazardous wastes such as waste oils in Baidoa.

Mitigation measures

- Prior to the commencement of construction, an Environmental and Waste Management Plan will be developed that identifies the waste streams, identifies opportunities for waste reduction, reuse and recycling, and defines waste management procedures for construction and operation of the plant.
- Contractors will be contractually obligated to follow the Environmental and Waste Management Plan/procedures which will include procedures for waste reduction, segregation, handling, storage, transportation and disposal. This will include documenting and reporting on the type and quantity of waste which has been stored, transported, treated, recovered or disposed.
- E-waste will be stored safely at the site until it has been collected in sufficient quantity to warrant transporting it to an e-waste recycling facility in the region or returned to the supplier for recycling.
- Plant maintenance and waste management procedures will be designed to minimize the quantities of hazardous wastes generated, including by substituting hazardous inputs with those that are less hazardous and through stringent waste segregation. Hazardous wastes will be stored on site in accordance with EHS guidelines so as to reduce to reduce the risk to workers and of environmental contamination.

6.3.3 Noise

Construction phase

The plant is located in an area with high baseline noise levels due to its proximity to the airport and the traffic from military and supply vehicles in the area, including on the road around the site perimeter. The use of machinery during site preparation and construction activities is expected to result in a temporary, localized increase in ambient noise. The nearest residential area is located approximately 100 meters from the boundary of the project site and the UN compound is further away from the site. Due to the nature of the earth works and installation activities, the distance of the project site from residential areas, the existence of the perimeter walls and bushes, as well as the baseline ambient noise in the area, the impact of construction

noise on the public and UNSOS/ATMIS personnel within the green zone is considered minor. However, construction related noise can have a significant impact on the workplace environment, which can be mitigated effective implementation of workplace health and safety measures.

Operational phase

Noise generated during the operation of the plant will primarily result from the running of the generators, the transformers and inverters, and vehicle traffic. Generators and other noise generating equipment will be housed in an acoustic enclosure such that the impact on noise will be negligible. Overall, the noise should be reduced because the diesel generators currently used by off-takers will be substituted by the electricity generated by the solar power plant.

Mitigation measures

Construction and Operation Phase

The contractors' will be contractually obligated to follow the project's health and safety procedures which will include measures to mitigate the potential impact of noise in the workplace. This will include:

- Providing workers at the site with full, adequate personal protective equipment (PPE) and posting signage at the site entrance indicating the type of PPE required in different areas;
- Carrying out construction activities that will generate levels of noise of more than 70 dBa from 7:00am – 6:00pm.

6.3.4 Soil Quality

Construction phase

The geological characteristics at the site are favorable for the establishment of PV structures. The land at the site is flat and slopes gradually to the east/northeast (0.6% - 1.3% grade) and the substrate is suitable for construction. This will reduce the need for earthworks during construction.

The use of fixed PV panels anchored using piles driven into the ground will not require the use of concrete. Concrete foundations will be necessary for the batteries, generators, inverters and liquid storage tanks. The use of concrete involves indirect impacts linked to its production: consumption of exhaustible natural resources (aggregates and sand), water consumption and the possible consumption of polluting additives. However, the amount of concrete required for the project is small. It is not expected that additional gravel, aggregate and other materials will be required other than for the concrete foundations.

The project is not expected to make important changes to the hydrographic. Based on a preliminary site assessment, both riverine and overland flood risks are expected to be low due to the hydrological and physiographic characteristics of the site. Only minor drainage channels are foreseen. Water will flow under and around the PV panels so that infiltration and precipitation will not be significantly different from what exists under current conditions.

Although, waterproofed concrete surfaces can influence the rain flow and drainage, these areas are small enough that they will not impact water flow and drainage at the site. Once a local contractor has been selected, an assessment of potential future flood risks to the site will be completed. This will include identifying if detailed hydrological studies are required and if the drainage design should be modified to improve flood resilience.

Permanent unpaved roads exist to access the site. These roads will be sufficient for the access of construction and delivery vehicles. The construction of additional access roads, and the modification of existing roads, is not planned for either construction or operation.

Potential impacts on soil during the construction phase could result from contamination due to leaks or spills of fuel or oils used or generated during construction, as well as to improper treatment of wastewater or other wastes. These risks are moderate in severity, and the likelihood is low with controls in place. In addition, soil compaction and removal of vegetation during construction could increase the risk of soil erosion.

Operational phase

During project operation, the main risks to soil and groundwater quality are associated with potential contamination due to leaks or spills of diesel, or due to improper treatment and disposal of hazardous wastes, wastewater or other wastes. No chemicals are used to clean the solar panels.

Mitigation Measures

To reduce the risk of soil erosion and the loss of soil cover:

- Removal of vegetation will be kept to a minimum, especially around the site perimeter, and options will be explored to re-seed or re-plant vegetation as a surface cover.
- Construction vehicles will be limited to designated areas to prevent unnecessary soil compaction.

Assessment of potential future flood risks to the site will be completed, including identifying if detailed hydrological studies are required. To reduce the risk of contamination due to leaks or spills of diesel:

- Diesel storage tanks and delivery bay will be fully bunded (110% maximum volume bund) to prevent hazardous material / hydrocarbon spillage and environmental.
- Develop and implement procedures for the safe and orderly storage of fuels and refueling of generators, as well as development of a Material Safety Data Sheet (MSDS) that provides details and comprehensive information on controlled products related to:
  - Health effects of exposure to the products
  - Hazards evaluation related to the product’s handling storage and usage
  - Measures to protect the workers at risk of exposure
  - Emergency procedures in place

The Environmental and Waste Management Plan and procedures will address the management of hazardous wastes and wastewater to prevent contamination (see mitigation measures in 6.3.2 and 6.3.4)

6.3.5 Water Resources, Water Quality and Wastewater

Construction phase

The demand for water at site for the construction phase is expected to be between 20,000 and 60,000 litres for the entire construction period. This includes water for sanitary purposes, maintenance of machinery, mixing of concrete and module cleaning.

Construction of a borehole is not foreseen as part of the project. Water will be obtained off-site from a municipal supply point or from an UNSOS managed borehole, transported to the site via bowsers, and stored in two 10,000 litre storage tanks. The impact of water demand from the construction process on the municipal or UNSOS water supplies is minor. Nonetheless, water will be managed efficiently to minimize consumption. Potable drinking water for workers will be supplied separately. Black water will be removed from site by a local service provider.

The majority of workers during the construction process will be current residents of Baidoa and will stay in their own residences in town. Therefore, the workforce will have a negligible impact on total water demand.

On-site sanitary facilities for the workforce will generate wastewater that will be managed through a septic tank that will be lined for leak prevention. Wastewater will be removed by a qualified local service provider.

The nearest surface water and groundwater source is Isha spring, approximately 1 kilometer from the project site, located in town. The likelihood that an accidental leak or spill of diesel at the site would lead to contamination of surface water or groundwater is low. Nonetheless, measures will be implemented to prevent spillage and environmental contamination.

Operation phase:

The main use of water during operation will be routine cleaning of the solar panels. No chemicals are used to clean the solar panels.

Mitigation measures:

- Contractors will be provided with guidelines on efficient water use, to ensure water consumption during construction and operation is kept to a minimum. Resource efficiency initiatives are integrated into the ESMS.
- Mitigation measures to reduce the risk of diesel spills and contamination will be implemented (described in Section 6.3.4)

- A lined septic tank will be constructed onsite and wastewater will be collected from the site by a qualified service provider. Wastewater management will be addressed within the Environmental and Waste Management Plan.

6.3.6 Biological Environment

The project site is located within an already built-up military and airport complex within an urban area. The immediate surrounding areas are developed urban settlements and agricultural land that have already been altered due to human activity and do not have unique biological diversity or sensitive habitats. The project site has been designated for development. While there is vegetation at the site, any naturally occurring species and vegetation has been degraded and removed due to previous clearance and use of the land. The impact of construction and operation on the biological environment is considered negligible.

6.3.7 Municipal Services

The construction and operation of the plant will make very limited use of municipal services. The only municipal services that may be used during construction and operation of the plant are municipal water resources. However, water can also be obtained from an UNSOS-managed borehole (See Section 6.3.4). Black water will be removed from site by a local service provider, as no municipal service is currently available. The plant will be self-generating of all required power (auxiliary power) and a net exporter of electricity.

6.3.8 Community Health and Safety

Construction and operation phase

All construction activities will take place within the secure green zone, where access is strictly controlled. There is a perimeter wall separating green zone and the nearest residential area. An additional layer of security will be put in place at the site premises, which will be fenced and where access will be controlled by a security guard. Therefore, the likelihood that construction activities carried out on site will negatively impact community safety is low. During construction and operation of the plant, a small number of technical and managerial personnel will come from outside of Baidoa. These personnel will travel to the site by air, be housed within the UN compound and will not leave the green zone. The remaining workers will be residents of Baidoa. Therefore, the impact of the workforce on the surrounding community is negligible.

Site security and presence of security personnel

The 'green zone', as described in this report, is protected, access is restricted and controlled, and the area is patrolled by ATMIS and government security personnel. The project is subject to ATMIS and government security procedures and falls under its security umbrella. Kube Energy is coordinating with ATMIS and the UN to carry out risk assessments with regard to the location of the project in the green zone. Any required safety mitigation measures will be coordinated and implemented prior to commencing activities at the Project site.

In addition, a professional security company will provide site-specific security services at the project site as an additional 'layer' of security. The role of the security personnel employed by the project will be to monitor and observe the site, control access to the site, and deter theft or damage of equipment. Because the security personnel employed by the project are deployed inside the green zone, they are not expected to interact directly with the surrounding community. However, their presence will affect the workplace environment.

Traffic and coordination of access to the green zone

Increased heavy vehicle traffic due to activities during construction and operation can have an impact on community safety. Most of the project components will be transported to the site by air, which will reduce the impact on traffic as well as security risks associated with transport. During construction, it is expected that project-related vehicle traffic to and from the site will be limited and will not lead to abnormal traffic. The roads leading to the green zone pass through the urban area of Baidoa. They are used as supply and transport routes for the UN, ATMIS and other commercial entities with traffic from heavy vehicles and suppliers, therefore the overall impact on traffic is minor.

Because entrance to the green zone is restricted, contractors, local workers and service providers will require authorization to enter. Coordination of traffic and access may be required with ATMIS and with the relevant department of the GoSWS.

Operation phase

The operation of the PV plant will not increase heavy vehicle traffic and the impact upon local traffic is negligible.

Mitigation Measures

- Reduced driving speeds and use of well-maintained vehicles.
- Detailed survey of the route to site and conduct a route hazard survey to ensure all mitigations are in place for the teams embarking to site.
- A professional security contractor will provide site security and their ability to adhere to human rights standards and professional codes of conduct, as well as capacity to react adequately in Baidoa, will be a part of the selection criteria.
- The contractor will be required to ensure that security personnel are well-trained and conduct themselves in accordance with human rights standards and best practices, including the appropriate use of force and prevention of sexual exploitation, abuse, and harassment.
- A Security Management Plan and security procedures will be developed, including protocols for coordination of site security with the UN and ATMIS, and for authorization of access to the green zone for contractors, workers and service providers.

6.3.9 Workplace Health and Safety

Construction and Operation Phase

Construction activities can potential pose risks to workers health and safety. For example, workplace injuries could arise from accidents during transport or at the workplace, accidental slipping, hazards related to exposure to dust and emissions, or handling of hazardous materials.

As the majority of the workforce will be local workers who are resident in Baidoa, no special provision will be made for workers accommodation or for transport to and from the site. The small number of personnel who will come from outside of Baidoa during construction and operation will travel by air, be housed in the UNSOS compound, and will not leave the green zone.

Due to the limited public health system in Baidoa, workers may be exposed to increased health risks, including diseases associated with water and food contamination, pandemic diseases and HIV/AIDs.

Mitigation measures

- The contractors involved in construction and operation of the plant will be contractually obligated to develop and implement a Health and Safety Plan that is in line with the General EHS Guidelines, Site Protocols, Workers Code of Conduct and the EHS Guidelines for Electric Power Transmission and Distribution, and its implementation will be regularly monitored.
- Health and Safety Guidelines for personnel who are not resident in Baidoa will also be developed covering issues such as code of conduct, accommodation, transport, medical and evacuation procedures, and safety and security protocols.
- Health and Safety Risk Assessments will be carried out prior to starting activities.
- Training and awareness-raising programmes, and ongoing HSE refreshers, will be provided.
- Contractors' HSE representatives will carry out ongoing monitoring of HSE practices.
- Contractors and workers will be sensitized on HIV/AIDS and prevention measures.

6.3.10 Land use

The project will be located on currently unoccupied and unused public land. Baidoa airport was built in the 1970s. The land within the green zone protected by ATMIS, including the project site, has been under the jurisdiction of the GoSWS since Baidoa was retaken from Al-Shabaab in 2012. In addition, in 2022, the GoSWS passed the Urban Land Code, which legally defines government-owned land. This definition includes "land that is legally owned, used or occupied by federal, state or local government agency, including land that is rented out to non-state tenants, or any land acquired or taken over by the government…" This confirms that the project site is government-owned land.

The Presidency of SWS delegated full authority to the Ministry of Energy and Water Resources (MoEWR) to sign and execute contracts between Kube Energy Somalia and the SWS Government in the framework of the project, including the provision of necessary permits and

licenses to build and operate the power plant, and the coordination with other relevant State ministries and competent authorities. This delegation of authority was provided on 30 November 2021. The land lease agreement between the GoSWS, represented by the MoEWR, and Kube Energy Somalia was signed on 1st December 2021. The land lease agreement provides for the leasing of the selected site of approximately 40,000 m^2 for a period of 15 years from the commercial operation date of the power plant. The site shall only be used to install and operate a power plant, micro-grid, and other necessary installations/use in accordance with this, with the intention to produce and delivery electricity.

As discussed in Section 2, since the green zone was established in 2012, the project site has been largely unused, apart from occasional use by AMISOM/ATMIS. The GoSWS has designated the site for development. The project site cannot be used for agriculture, grazing of livestock, or other productive purposes by members of the community because of its location near the airport infrastructure and because access is restricted within the green zone. The land lease will generate revenue for the GoSWS. In addition, the project will provide the government with a more reliable, clean, affordable source of power. Therefore, the proposed project will have a positive impact on land use at the site.

6.3.11 Electromagnetic fields

The development of utility scale power plants can raise public concerns about the potential impact of electromagnetic fields (EMFs) on public health. A number of studies have measured EMFs in commercial PV facilities and found that the measured levels are below the levels for safe general public and occupational exposure as set out in the International Commission on Non-Ionizing Radiation Protection (ICNIRP) guidelines.[25] The power plant will not utilize high voltage lines or equipment. The EMF levels will be below the safe exposure levels set by the ICNIRP guidelines and will have a negligible impact.

6.3.12 Glare and Glint

Solar PV modules are designed to absorb rather than to reflect light, however, panel glass can nonetheless produce a concentrated reflection. Solar reflection may cause glint (a quick reflection) or glare (a longer reflection) to those observers that are on the viewing angle. Solar systems are becoming increasingly common in and around airports and can safely exist in airport premises, however the potential impact of glint and glare for air traffic is a concern.

Due to the location of the project site near Baidoa's airport, the potential impact of glint and glare on the flight path has been assessed. This has considered the orientation and tilt of the solar panels and the direction of the flight path, to predict the times of day and year where glare could occur. It was determined that the potential negative impact was very low and limited. This analysis determined that most of the year the reflection from the solar panels will be towards the opposite direction of the flight path, meaning that there will be no reflection. There will be a few weeks from early June to mid-July during which reflection from the solar panels may be in

[25] See for example, R. A. Tell, H. C. Hooper, G. G. Sias, G. Mezei, P. Hung & R. Kavet (2015) Electromagnetic Fields Associated with Commercial Solar Photovoltaic Electric Power Generating Facilities, Journal of Occupational and Environmental Hygiene, 12:11, 795-803, DOI: 10.1080/15459624.2015.1047021

the direction of the flight path during a very short duration (25-30 minutes per day) early in the morning at a time in which there are no scheduled flights in Baidoa. The project, including site location, was described to the SWS Minister of Transport and Civil Aviation and the latter agreed and provided his full support. The project is committed to continue working with the operator of the Baidoa airport if there is any need in the future.

6.3.13 Cultural Heritage and Archaeological Features

There are no registered archaeological or cultural heritage features in the project area. The likelihood of a chance find is low, but in the event this occurs, measures must be taken to avoid any damage.

Mitigation measure

The contractor will be made aware of chance find procedures and will implement them in the case of a chance find. This involves halting construction activities, protecting the area, and notifying the appropriate local authorities.

6.3 Impact of the Environment on the Project

6.3.1 Impact of dust

Baidoa experiences periods of high wind and dust storms. In addition, the project site is exposed to dust from vehicle traffic especially along the main road. Abrasion and deposits of dust on PV cells can reduce their performance and energy output. Periodic module cleaning and maintenance will reduce the impact of deposited dust on performance.

Mitigation measures

- Dust control methods will be implemented including maintaining and re-seeding vegetation as a surface cover.

6.3.2 Impact of heavy rain and flash floods

Baidoa is located within an area that is impacted by flash floods during heavy rains. However, the project site itself is in an area that has not been previously impacted by flooding and is considered low flood risk. The airport area including the site is at an elevation of 455 meters, 30-50 meters above lower lying areas that have been flood-affected in the past. It also slopes gradually to the east/northeast (0.6% - 1.3% grade). It was reported that the airport area, especially the site selected has not been subject to any flooding in the past. Based on a preliminary site assessment, both riverine and overland flood risks are expected to be low due to the hydrological and physiographic characteristics of the site.

Mitigation measures

Only minor drainage channels are anticipated to be required for rainfall runoff from the site, and no flood drainage prevention is foreseen. However, once a local contractor has been selected, an assessment of potential future flood risks to the site will be completed. This will include identifying if detailed hydrological studies are required and if the drainage design should be modified to improve flood resilience.

6.3.3 Impact of heat and extreme weather on workplace health and safety

Baidoa's climate is hot with average daily high temperatures close to or over 90°F over the course of the year. Exposure to extreme temperatures can pose a health risk to workers and can cause heat-related illness. In addition, dust storms or other extreme weather events can adversely affect workers health and safety.

Mitigation measures

Temperature related stress management procedures will be implemented including:

- Monitoring weather forecasts for outdoor work to provide advance warning of extreme weather and scheduling work accordingly;
- Adjusting work and rest periods, depending on the temperature and workloads;
- Providing a shaded rest area and temporary shelters to protect against the elements during work activities;
- Providing workers with easy access to drinking water and adequate hydration.

Section 7. Analysis of alternatives

This section examines and elaborate the alternatives to the proposed Baidoa solar power PV project. Three different alternatives have been considered during the ESIA process: no development, alternative siting and alternative power-generating solutions and technologies.

7.1 No development

This ESIA uses the alternative not to develop the proposed plant as the scenario with which to compare the environmental and social impacts of the plant's construction and operation.

If the proposed Baidoa solar power plant is not built and operated, the project-induced environmental and social impacts will not occur. In this case, choosing the no project alternative would most likely maintain the status quo, however it also could result in changes from other actions.

In the event that the power plant is not developed, UNSOS and other potential off-takers will most likely continue to depend upon diesel generators for their electricity needs. This will result in higher GHG emissions than in the scenario where the plant is not developed. In addition, off-takers would experience less reliable energy supply and higher energy costs. This, in turn, inhibits their effective and efficient operation and ability to deliver services to the public.

A key consideration in assessing the no development option is the potential alternative land uses that could be realized if the site were not used for a solar power development. In this case,

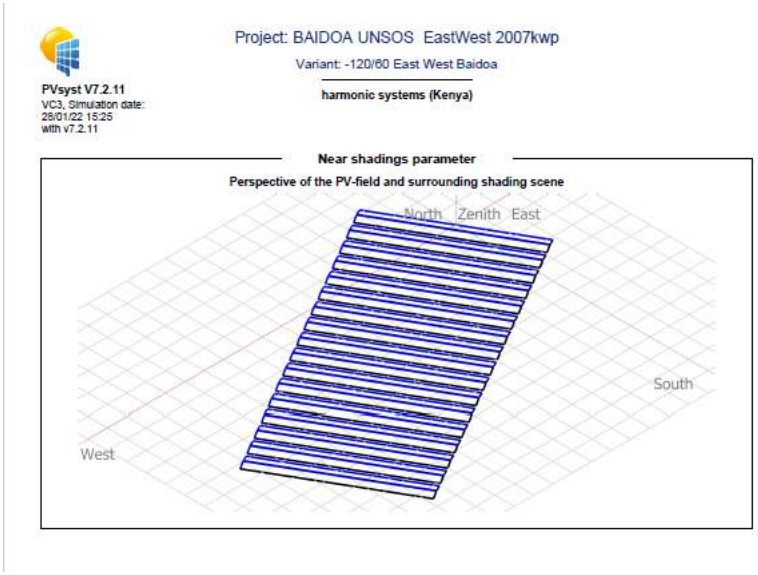
the potential alternative productive land uses are limited due to the site location and therefore the opportunity cost is insignificant.

Furthermore, most of the potential adverse environmental and social impacts are minor and can be avoided or successfully mitigated through adequate planning, monitoring and with the implementation of mitigation strategies.

7.2 Alternative site location

Key considerations in the selection of site location are whether the proposed solar facility will interfere with existing land uses (e.g. agriculture), whether they could potentially impact biological habitats or nearby designated/protected areas such as areas of critical environmental concern, cultural heritage sites, or special recreation management areas, and whether they could impact inhabitants or surrounding communities.

Other important factors influencing the selection of the proposed project site in Baidoa are site security and proximity to the main off-takers (UNSOS and GoSWS). For these reasons, the only area where the site could be located was in the green zone. The GoSWS and the project proponents considered several alternative sites within the green zone and selected the site, taking into consideration current land use, planned and potential future land use, interconnection requirements, and suitability of the land for solar installation. The solar plant layout was optimized to utilize the selected area for optimal solar yield, using PVSyst modelling. A 60Dec shifted East-West mounting structure with layout as per the below was including in updated designs.



This assessment concludes that the site is suitable to establish the plant and that there is no preferred alternative site for this project. Developing the existing site will not negatively impact surrounding communities or areas of biological or cultural significance nor will it disrupt existing activities and land uses. The site is suitable from a security and technical perspective, and the technical and economic requirements are simplified due to its location adjacent to UNSOS and other off-takers.

7.3 Alternative technology

Solar energy is a suitable renewable energy technology for Baidoa due to the high level of solar radiation, the availability of land, as well as the relatively low technological requirements for the plant's operation. The system has been designed based on system reliability, cost-effectiveness and to minimize environmental impact. The entire system has been configured and sized to maximize the usage of solar PV generated power, reducing the reliance on diesel generation, whilst also reducing on the total cost of power.

Mono-crystalline silicone-based PV modules were chosen for their superior efficiency and cost-effectiveness, compared to other PV technologies, as well as other environmental considerations (lifetime, possibility of recycling).

The PV mounting structure is a self-supporting structure, which minimizes the requirement for earthworks and reduces the depth of penetration required for the piles.

The BESS will be installed to allow excess electricity generated during the day to be stored and used at night, reducing the need to run generators and thus, decreasing CO2 emissions. However, diesel generators are still necessary to supply additional energy when demand is high or when the weather conditions are less favorable, to ensure a reliable and stable energy supply.

The generator plant consists of multiple smaller gensets as opposed to one big unit to allow for system redundancy. In addition, this configuration improves fuel efficiency by ensuring that the gensets are operating closer to their optimal loading.

Section 8. Environmental and Social Management Plan

This section describes the project's Environmental and Social Management Plan (ESMP) which describes how the project will deliver the E&S mitigation and management measures outlined in the ESIA report. The ESMP describes the actions that should be taken during construction and operation of the plant to implement the mitigation measures, the institutional arrangements and responsibilities for implementing and overseeing the plan, and a monitoring framework to track implementation of the mitigation activities and the ES performance of the project.

The purpose of the ESMP is to:

- Ensure continuing compliance with applicable Federal and SWS law and regulations, IFC Performance Standards, EHS Guidelines and the project proponents' corporate ES policies;
- Outline the ways in which the potential impacts identified in this ESIA report will be managed;
- Ensure that appropriate monitoring is undertaken, including the establishment of a monitoring plan; and provide a framework for assessing compliance with respect to ES performance.

This section presents the preliminary ESMP for the Baidoa PV project based upon the current stage of project development and information available at the time of the ESIA. The ESMP will be

refined and specific policies and management plans will be developed by the project proponents and their contractors as the project planning advances, and after contractors are selected.

8.1 Institutional Arrangements

Kube Energy Somalia is responsible for the E&S performance of the project and for ensuring that Contractors commissioned during the construction and operation undertake necessary measures to comply with the ESMP. CBE's corporate Environmental and Social Management System (ESMS) will be extended to the Project, and CBE's E&S policies, guidelines and procedures will apply to the project and will be followed by Kube Energy Somalia. The EPC and O&M contractor(s) ("the Contractors") will be required to abide by these policies. This is to be included in the Contractors' scope of work (contract) and addressed in the Contractors' management plan(s).

CBE's HSE Project Manager will support Kube Energy Somalia to oversee the delivery and monitoring of E&S requirements, including overseeing and approving E&S policies, plans and procedures at the project level and coordinating with and overseeing the Contractors. The HSE Project Manager will be responsible for communicating standards and expectations for E&S performance to contractors, monitoring the regulatory environment and ensuring operations are compliant with applicable legislation, and ensuring inspections and audits are undertaken and corrective actions are taken where necessary.

The ESMP will be implemented by the Contractors. The Contractors will be required to develop specific management plans covering issues such as health & safety, pollution prevention, and emergency preparedness that will be approved and overseen by the HSE Project Manager. The Contractors will also provide Risk Assessments and Method Statements which will describe the scopes of work, hazards present and relevant mitigation measures.

Contractors' scope of work will include provision for training of workers and of local sub-contractors as necessary for them to implement HSE policies, procedures and processes, and Human Resource policies, including sensitization on non-discrimination and harassment, and the Grievance Redress Mechanism.

8.2 Third Party and Responsible Supply Chain

The project proponents will implement a code of conduct that covers suppliers, and carry out supply chain screening to assess health and safety, environmental and labor practices within their supply chain in line with the Performance Standards. The supplier screening will cover forced labor and child labor as part of the due diligence process, and provisions on forced labor and child labor will be included in all supplier contracts.

The EPC and O&M contractor(s) will also be contractually required to follow CBE's Code of Conduct which includes commitments related to responsible procurement. It also includes, among other issues, standards for: professional conduct; anti-bribery and anti-corruption

standards; non-discrimination, GBV and harassment and non-retaliation; working conditions and terms of employment; conflict of interest and disclosure; confidentiality; political activity; and alcohol and drug policy.

8.3 Summary of the ESMP for Construction and Operation Phases

This section summarizes the project's ESMP for the construction and operation phase. This outlines the mitigation measures that will be implemented to reduce significant E&S impacts, as outlined in Section 6. Additional E&S Management Plans will also be developed and are described in Sections 8.2 – 8.6.

Construction Phase			
Issue	**Mitigation summary**	**Responsible party**	**Timeframe**
1) Air quality			
• Air emissions from fuel combustion and machinery	• Ensuring vehicles and machinery are maintained in good working condition to reduce noxious emissions and exhaust. • Reduced driving speed of transport vehicles. • Teams to implement a Journey Management Plan.	Contractor	Throughout construction
• Dust emissions	• Dust management and suppression techniques such as covering excavated materials, sprinkling with water and maintaining vegetation to reduce potential for windblown matter. • Teams to wear dust masks as part of the recommended PPE where applicable. • Areas to be cleared of vegetation or topsoil shall be cleared only when required. • Vehicle speeds should be limited to 30km/h on unpaved surfaces.	Contractor	Throughout construction
2) Waste			
• Environmental contamination due to improper disposal, storage, treatment of hazardous and non-hazardous wastes	• Environmental and Waste Management Plan will be developed that identifies the waste streams, identifies opportunities for waste reduction, reuse and recycling, and defines Waste Management Procedures for construction and operation of the plant.	Project proponents & Contractor(s)	Project Planning Phase

	• Hazardous wastes generated to be minimized through waste planning and procedures.		
	• Waste management procedures will be implemented covering waste reduction, segregation, handling, storage, transportation and disposal. This will include documenting and reporting on the type and quantity of waste which has been stored, transported, treated, recovered or disposed.	Contractor(s)	Throughout construction
	• Facility for safe storage of waste, including hazardous waste and e-waste, to be established on-site.	Contractor(s)	Throughout construction
3-Noise			
• Ambient noise from machinery and equipment affecting health and safety of workers or others in the surrounding area.	▪ Providing workers at the site with full adequate PPE and posting signage at the site entrance indicating the type of PPE required in different areas. ▪ Carrying out construction activities that will generate levels of noise of more than 70 dBa from 7:00am – 6:00pm.	Contractor(s)	Throughout construction
4-Soil Quality			
• Soil erosion	• Assessment of potential future flood risks to the site. This will include identifying if detailed hydrological studies are required and if the drainage design should be modified to improve flood resilience.	Project proponents & Contractor(s)	Project planning phase

	• Removal of vegetation will be kept to a minimum, especially around the site perimeter, and options will be explored to re-seed or re-plant vegetation as a surface cover. • Construction vehicles will be limited to designated areas to prevent unnecessary soil compaction.	Contractor(s)	Throughout construction
• Soil contamination (or contamination of surface or ground water) due to leaks or spills of diesel	• Develop and implement procedures for the safe and orderly storage of fuels and refueling of generators, as well as development of a Material Safety Data Sheet (MSDS) that provides details and comprehensive information on controlled products related to: - Health effects of exposure to the products - Hazards evaluation related to the product's handling storage and usage - Measures to protect the workers at risk of exposure - Emergency procedures in place	Project proponents & Contractor(s)	Project planning phase and throughout project life
	• Diesel storage tanks and delivery bay will be fully bunded (110% maximum volume bund) to prevent hazardous material / hydrocarbon spillage and environmental.	Contractor(s)	Throughout project life
5- Water Quality, Water Resources and Wastewater			

• Impact of water consumption on municipal water resources	• Procedures for water use during construction to be developed and implemented for efficient sustainability practices	Project proponents & Contractor(s)	Project planning phase & throughout construction
• Contamination due to improper treatment and disposal of wastewater.	• Procedures for treatment and disposal of sewage and other wastewater generated during construction to be developed. • Wastewater to be collected from the site by a qualified service provider.	Project proponents & Contractor(s)	Project planning phase & throughout construction
6- Community Health and safety			
• Un-authorized access to the site resulting in incidents or accidents • Misconduct by security personnel	• Perimeter fencing to be installed and access to the premises restricted to authorized personnel and visitors only. • A Security Management Plan and security procedures will be developed, including protocols for coordination of site security with the UN and ATMIS, and for authorization of access to the green zone for contractors, workers and service providers • A professional security contractor will provide site security and will be selected based upon their ability to adhere to human rights standards and professional codes of conduct, as well as capacity to react adequately in Baidoa. • Adequate modules on human rights issues and gender topics are integrated into the	Project proponents & Contractors	Project planning & throughout construction and operations period

	training program and well communicated to security guards. GRM (and other mechanisms) for reporting complaints or abuses by security personnel to be available to all workers and contractors and publicly accessible through a visible site banner displayed on site highlighting the various channels of communication and the contact people		
• Risk of incidents affecting public safety due operation of heavy vehicles on public roads	• Reduced driving speeds and use of well-maintained vehicles. • Detailed survey of the route to site and conduct a route hazard survey to ensure all mitigations are in place for the teams embarking to site.	Contractor(s)	Project planning & throughout construction period
7- Workplace Health and safety			
• Occupational health and safety risks and hazards to workers	• Develop and implement OHS Plan and procedures in line with the General EHS Guidelines and the EHS Guidelines for Electric Power Transmission and Distribution • Health and Safety Guidelines for personnel who are not resident in Baidoa will also be developed covering issues such as accommodation, transport, medical and evacuation procedures, and safety and security protocols.	Project proponents & Contractor(s)	Project planning & throughout construction period
8-Cultural Heritage and Archaeological Features			

• Chance find of cultural or archeological significance	• Chance find procedures to be implemented	Project proponents & Contractor(s)	Throughout construction period
9-Impact of the Environment on the project			
• Impact of heat and extreme weather on workplace health and safety	• Temperature related stress management procedures will be implemented including: • Monitoring weather forecasts for outdoor work to provide advance warning of extreme weather and scheduling work accordingly; • Adjusting work and rest periods, depending on the temperature and workloads; • Providing a shaded rest area and temporary shelters to protect against the elements during work activities; • Providing workers with easy access to drinking water and adequate hydration.	Contractor(s)	Throughout construction period

Operations Phase			
Issue	**Mitigation summary**	**Responsible party**	**Timeframe**
1-Air quality			
• Fuel combustion emissions from diesel generators • Fugitive emissions from fuel storage	• Emissions monitoring through theoretically quantifying the emissions using the generator's efficiency and the quantity and type of fuel used.	Project proponents & Contractors	Throughout project life

	• Maintaining gensets in good working condition to improve efficiency and minimize emissions. • Remote monitoring and optimization of the plant to minimize running of back-up generators and fuel use. • Ensuring fuels are stored in covered/sealed containers and safely handled on site to minimize spills or leakage and to avoid potential fugitive air emissions.		
2- Waste			
• Environmental contamination due to improper disposal of e-waste, hazardous waste, and non-hazardous waste	• Waste management procedures will be implemented covering waste reduction, segregation, handling, storage, transportation and disposal. • Documentation and reporting on the type and quantity of waste which has been stored, transported, treated, recovered or disposed. • E-waste will be stored safely at the site until it has been collected in sufficient quantity to warrant transporting it to an e-waste recycling facility in the region or returned to the supplier for recycling. • Hazardous waste to be stored safely at the site until options become available	Project proponents & Contractors	Throughout project life

	for off-site disposal or recycling according to best practices.		
3-Noise			
• Workplace hazards due to noise generating equipment	• Providing workers at the site with personal protective equipment (PPE) and posting signage at the site entrance indicating the type of PPE required in different areas	Contractor(s)	Throughout project life
4-Soil quality			
Contamination of soil (or groundwater or surface water) due to leaks or spills of diesel	• Diesel storage tanks and delivery bay will be fully bunded (110% maximum volume bund) to prevent hazardous material / hydrocarbon spillage and environmental. • Develop and implement procedures for storage of fuels and refueling of generators as part of Environmental and Waste Management Plan • Inclusion of spill scenario in Emergency Response Plans.	Project proponents & Contractor(s)	Throughout project life
5-Water Quality, Water Resources and Wastewater			
• Impact of water consumption on municipal water resources	• Procedures for efficient water use during operation, including module cleaning to be developed and implemented.	Contractor(s)	Throughout project life
• Contamination due to improper treatment and disposal of wastewater.	• Procedures for treatment and disposal of sewage and other wastewater generated during construction to be developed.	Contractor(s)	Throughout project life

	• Wastewater to be collected from the site by a qualified service provider.		
6-Community Health and Safety			
• Un-authorized access to the site resulting in incidents or accidents • Misconduct by security personnel	• Perimeter fencing and restricted access to the site premises. • Company will be selected to provide site security based upon their ability to adhere to human rights standards and professional code of conduct. • Adequate modules on human rights issues and gender topics are integrated into the training program and well communicated to security guards • A Security Management Plan and security procedures will be developed and implemented, including protocols for coordination of site security with ATMIS, and for authorization of access to the green zone for contractors, workers and service providers. • GRM (and other mechanisms) for reporting complaints or abuses by security personnel to be available to all workers and contractors and publicly accessible.	Project proponents & Contractors	Throughout project life

7-Workplace Health and Safety			
• Occupational health and safety risks and hazards to workers	• Develop and implement OHS Plan and procedures in line with the General EHS Guidelines and the EHS Guidelines for Electric Power Transmission and Distribution • Health and Safety Guidelines for personnel who are not resident in Baidoa will also be developed covering issues such as accommodation, transport, medical and evacuation procedures, and safety and security protocols. • Health and Safety Risk Assessments will be carried out prior to starting activities. • Training and awareness-raising programmes, and ongoing HSE refreshers, will be provided. • Contractors' HSE representatives will carry out ongoing monitoring of HSE practices. • Contractors and workers will be sensitized on HIV/AIDS and prevention measures.	Project proponents & Contractor(s)	Project planning & throughout construction period
8-Impact of the Environment on the Project			
• Impact of dust	• Dust control methods will be implemented including maintaining	Contractor(s)	Throughout project life

	and re-seeding vegetation as a surface cover.		
• Impact of heat and extreme weather on workplace health and safety	• Temperature related stress management procedures will be implemented including: • Monitoring weather forecasts for outdoor work to provide advance warning of extreme weather and scheduling work accordingly; • Adjusting work and rest periods, depending on the temperature and workloads; • Providing a shaded rest area and temporary shelters to protect against the elements during work activities; • Providing workers with easy access to drinking water and adequate hydration.		

8.4 E&S Management Plans

Kube Energy Somalia will develop E&S management plans for specific aspects of the project. Plans will include, but not be limited to:

- Environmental and waste management plan, including pollution prevention plan and water management
- Occupational health and safety plan, including the risk assessments and methods statement
- Emergency preparedness and response plan
- Transport plan
- Training plan
- E&S monitoring plan
- Chance finds procedure which outlines the process to be followed in the unlikely event that previously unknown archeological or cultural heritage resources are encountered during Project-related activities.

The Contractors will also be required, within their contract, to develop and implement E&S Management Plans that are aligned with the General EHS Guidelines and the industry guidelines for Electric Power Transmission and Distribution and CBE's Code of Conduct and E&S policies. These plans will need to be approved by the project proponent prior to commencement of work and they will be monitored as part of managing the contractors' overall performance.

8.4.1 Occupational Health and Safety Plan

The project will develop an Occupational Health and Safety (OHS) plan will set out the formal working practices, processes and procedures for OHS management for the project during construction and operation. This should clearly define roles and responsibilities for the Contractors and their personnel, and outline OHS processes for OHS risk management, training of workers, management of sub-contractors, incident reporting and OHS audit.

It will also set out OHS procedures to establish safe work practices and prevent occupational injury or accidents. This should include, but not be limited to, procedures for:

- Preventative maintenance such that tools, equipment and machinery used by workers are properly maintained;
- Use of signage to inform workers and visitors of hazards, procedures and specific safety equipment required;
- Provision and use of PPE including what must be used where;
- Procedures for the prevention and control of hazards related to fuel storage and re-fueling of generators;

- Procedures for the cleaning of solar modules;
- Requirements for operating of motorized vehicles and equipment;
- Electrical safety including prevention and control measures for installing, maintaining and repairing electrical equipment;
- Housekeeping and site management procedures including storage of equipment and materials;
- Fire protection equipment to be maintained on site;
- Procedures for handling of both hazardous and non-hazardous materials and wastes to reduce the risks to workers (also to be addressed in the Environmental and Waste Management Plan).

8.4.2 Environmental and Waste Management Plan

The project proponent will be responsible for ensuring that Contractors prevent and mitigate pollution, use resources such as water efficiently, and effectively manage hazardous and non-hazardous waste generated during construction and operation. An Environmental and Waste Management Plan will be developed that meets the standards set out in the General EHS Guidelines and CBE's corporate policies and the Contractors will be required to abide by it. This will address issues including but not limited to:

- Processes to prevent, or minimize, the quantities of wastes generated.
- Minimizing the generation of hazardous wastes, including by substituting hazardous inputs with less hazardous materials and through strict segregation of waste to prevent contamination.
- Procedures to safely store e-waste on-site, until this is collected in sufficient quantities to warrant transporting it to a recycling facility in the region or returning them to the supplier for recycling.
- Procedures to safely store hazardous wastes on-site, until commercial options become available to dispose of them according to best practices. All hazardous waste (e.g., fuel, oil) shall be stored in impervious containers in bunded areas of 110 percent capacity of the stored material to prevent contamination in case of accidental release.
- Waste storage facilities will be located in safe areas, enclosed, lined and covered to prevent spreading into surrounding areas and contamination of soil or water, as well as spreading due to rain water. The area will be sealed off and operated with limited access, and marked with safety signs to indicate potential hazards and restricted access. All wastes will be stored in color coded and clearly marked containers.
- Non-hazardous solid waste will be disposed of by a qualified local contractor.
- An inventory will be kept of all waste stored on site, and waste manifest forms completed for all waste removed from the site.
- Efficient use of water resources including in the cleaning of solar panels.
- Supply of clean drinking water for workers.

- Procedures for the disposal of wastewater during construction and operation by a qualified contractor.
- Procedures for pollution prevention related to diesel storage and re-fueling and equipment maintenance.

8.4.3 Emergency Preparedness and Response Plan

Emergency situations are those implying collective danger to persons, material goods or the environment. The project proponents will identify and assess major-accident hazards, and will develop an emergency preparedness and response plan, to prevent major accidents and to limit their adverse impacts on workers, affected communities and the environment. This will set out the principles for safety and emergency management, and define the roles and responsibilities of the project proponents and Contractors, including the organizational structures, responsibilities, procedures, communication, training, resources or other aspects required to prevent and respond effectively to emergencies associated with project hazards.

8.4.4 Security Risk Management Plan

As outlined in Section 6, the site is located within the green zone which is protected by ATMIS and where access is restricted. All Contractors and personnel will require authorization to enter the green zone. An additional layer of security will be provided at the site premises which will be secured with a perimeter fence. A restricted access policy will be enforced at the site premises, such that only authorized Contractors, workers and visitors will be permitted to enter. Their entry to the to the site will be controlled through a registration procedure (e.g. ID registration, tag system) implemented by security guards.

The project proponents will contract a professional company to provide security at the site premises. The company's adherence to human rights standards, vetting of personnel to ensure that they are not implicated in past abuses, standards of professional conduct towards workers, visitors, and community members, and their training of personnel will be considered as part of the selection criteria and due diligence process. The company providing site security services will be located on the site premises and their primary role will be to control access to the site, observe and monitor activity, and deter theft, trespassing and other infringements that could pose a risk to the safety of workers, property, and visitors. Expectations of appropriate conduct of security staff should be clearly communicated, and if permission to use force is granted, force will only be permitted as a matter of last resort. Adequate modules on human rights issues and gender topics will be integrated into the training program and well communicated to security guards.

Informed by a security risk assessment, the project proponents will develop a Security Risk Management Plan and protocols for the construction and operation of the plant in line with the requirements of PS4 to ensure adequate security risk management, emergency responses (including roles and responsibilities of private security and public forces) and duty of care for project workers, project-affected parties and contractors. This will define the roles and

responsibilities of the project proponents and Contractors for site security, and will outline processes for coordinating with ATMIS and government security personnel who have overall responsibility for security provision within the green zone. This will include coordination of access to the green zone for Contractors and workers, and steps to minimize security risks associated with the entry of project-related personnel.

Kube Energy Somalia will provide ultimate oversight of the project security guards and will record all security incidents and investigate all allegations of unlawful or abusive acts by its security personnel.

8.4.5 Decommissioning Plan

Decommissioning Plan

Decommissioning is defined as the close down of operations, the removal of process equipment, buildings and structures and carryout site cleanup and remediation if required. The expected lifetime of the facility ranges between 25 to 30 years with appropriate preventative maintenance. The facility lifetime may be extended further if obsolete equipment is replaced and upgraded over time.

It is foreseen that the plant will be handed-over to the local government after 15-years of operation and the handover strategy will include an E&S component. The GoSWS or the selected receiving entity will therefore likely manage and be responsible for the decommissioning, as Kube Energy Somalia will no longer be involved in the Project. In the event that decommissioning occurs before the transfer of ownership to GoSWS period, Kube Energy Somalia will undertake this responsibility. The decommissioning process should provide for:

- Restoring the site to baseline conditions, which may include re-vegetation, depending upon whether the land will be converted to other uses at the time of decommissioning.
- Disassembling the PV modules, mounting structures and electrical equipment, for recycling at an approved facility or by the equipment manufacturer (for e-waste) or for re-use.

8.6 Human Resources Policy

The project proponents' Code of Conduct commits to adherence to the IFC Performance Standards and IFC General EHS Guidelines in implementation of its' projects, including IFC Performance Standard 2 (PS2) addressing labor and working conditions. All Contractors are required to comply with this Code of Conduct as a condition of their engagement with the project, as well as to require compliance of all sub-contractors. In addition, all Contractors will be required to comply with the applicable labor and employment laws in SWS, as reviewed in Section 3. Finally, Contractors will be advised to be sensitive to workers' religious practices, such as allowing workers to

Working conditions and terms of employment

- A clear and understandable employment contract will be made available to all workers. This contract will comply with the applicable labor and employment laws in SWS, as reviewed in Section 3.
- In recognition of the vulnerability of migrant workers and trafficked persons who lack legal status in a country, it is expected that Companies will conduct adequate diligence in selecting any contractors that will be supplying labor and ensure that terms of employment for migrant and non-migrant workers engaged in comparable work are substantially equivalent.
- Hourly and quota-based workers will not be required to work more than 48 standard hours of work per week. All workers shall be guaranteed a weekly 24-hour rest period.
- All wages, including all legally mandated bonus pay and premium pay for overtime work, will be paid in full, in legal tender, and in a timely fashion to workers, except when workers have agreed otherwise.
- No Company shall employ persons, formally or informally, under the age of fifteen (15) for general work and persons under the age of eighteen (18) for work involving any hazardous activity.
- Workers will enter employment and contractor relationships at their liberty and will not be forced into any kind of service that is not voluntarily performed.
- Proactive efforts will be made to protect workers from injury and illness. This entails the identification of potential hazards and adequate responses through design, testing, and work processes to eliminate all avoidable risks to employees' health and well-being.
- For inherently hazardous workplace environments PPE will be provided at no cost to the worker. In addition, workers will have the right to remove themselves from hazardous situations without jeopardizing their continued employment.

<u>Non-discrimination and harassment</u>

- Contractors must be committed to establishing and maintaining a work environment in which all individuals are treated with respect and dignity. Each individual has the right to work in a professional atmosphere that promotes equal employment opportunities and prohibits discriminatory practices, including harassment.
- Contractors will accommodate workers' religious practices and local customs, for instance allowing workers to take breaks at prayer times.
- Contractors will be required to have a clear recruitment policy and will publicize information about open positions and the recruitment process through locally appropriate communication means, recognizing workers will need to pass a vetting process to enter the green zone.
- Employment decisions will not be based on personal characteristics unrelated to inherent job qualifications. Companies will also take active measures to prevent and not endorse any harassment within the workplace. The expectation is that reasonable accommodations will be made for all disabled employees and that special measures of protection or assistance will be targeted to underrepresented groups in the workforce.

- Contractors must make every reasonable effort to ensure that all concerned are familiar with these policies and aware that any complaint in violation of such policies will be investigated and resolved appropriately.
- Project activities will be conducted with particular sensitivity to risks that may be specific to women, including sexual harassment.
- Sexual harassment constitutes discrimination and is expressly forbidden. Sexual harassment is defined as unwelcome sexual advances, requests for sexual favors and other verbal or physical conduct of a sexual nature.[26]
- Sexual harassment occurs when, for example: (1) submission to such conduct is made either explicitly or implicitly a term or condition of an individual's employment; (2) submission to or rejection of such conduct by an individual is used as the basis for employment decisions affecting such individual; or (3) such conduct has the purpose or effect of unreasonably interfering with an individual's work performance or creating an intimidating, hostile or offensive working environment.
- The Contractor will explicitly prohibit retaliation by any employee against any other employee who has brought forward an issue or compliant in good faith through Company complaint procedures.
- Reporting of all perceived incidents of discrimination or harassment, regardless of the offender's identity or position, must be encouraged. Individuals who believe that they have been the victim of such conduct may discuss their concerns with their immediate supervisor, the Contractor leadership, the project proponents' leadership, or through the CBE anonymous reporting hotline.
- The Contractor will be required to have a Complaints Procedure in place (both informal and formal), which allows for such reporting.

8.7 Stakeholder Engagement Plan and Grievance Redress Mechanism

Stakeholders Engagement Plan (SEP)

The project will develop and implement a Stakeholder Engagement Plan to communicate and disclose project-related information to key stakeholders in a proactive manner, and will establish a GRM. The SEP will include:

- Description of the project proponents' requirements for public consultation and disclosure of project-related information;

[26] Sexual harassment may include a range of subtle and not so subtle behaviors and may involve individuals of the same or different gender. Depending on the circumstances, these behaviors may include, but are not limited to: Unwanted sexual advances or requests for sexual favors; Sexual jokes and innuendo; verbal abuse of a sexual nature; Commentary about an individual's body, sexual prowess or sexual deficiencies; Unwelcome notes, emails, phone calls, messages, or gifts of a sexually suggestive nature; Leering, whistling or touching; Insulting or obscene comments or gestures; Display in the workplace of sexually suggestive objects or pictures; Other physical, verbal or visual conduct of a sexual nature

- Description of the roles and responsibilities of the project proponents and contractors for stakeholder engagement activities;
- Regular liaison with the relevant Federal, SWS, municipal and district authorities to keep them informed of project-related activities;
- Timely and appropriate disclosure of information about planned activities to neighbors and the local community prior to and during construction, or non-routine activities during operation, if such activities may cause local disruption such as noise or abnormal traffic.

The project will designate in-country lawyers on standby during the construction period to be responsible for coordination of the Stakeholder Engagement Plan and liaison between the project proponents', Contractors, the relevant SWS and district authorities, and other community members.

Grievance Redress Mechanism (GRM)

The GRM is a set of simple and transparent procedures that provide its users with access to safe and confidential means of expressing complaints/concerns and guidance to staff on how to handle grievance to the point of giving feedback to the complaint. The Kube Energy Somalia will put in place GRM that is designed to ensure that community members, as well as the workforce, have a safe, easily accessible, and confidential way to raise grievances and to resolve their concerns. It allows the project to be active in identifying solutions to grievances and to resolve issues efficiently and effectively, and to resolve issues by consensus.

The establishment of the GRM will be based on the following guiding principles; Commitment and fairness, transparency, and accountability towards the Project Affected Persons (PAPs):

- **Participation** – Local stakeholders will be involved in the design and establishment of the mechanism to ensure it is culturally-sensitive and appropriate to the local context.
- **Confidentiality** - In order to create an environment in which stakeholders feel safe to raise their grievances, information about complaints is treated confidentially and only shared with designated staff to resolve the issues and give feedback.
- **Clear information** – It will be safe and confidential to raise grievances without fear of victimization, and the process for resolving complaints will be transparent.
- **Safe access** – Easily accessible, well-publicized focal point or user-facing 'site banner', in a location deemed to be credible and accessible by community members, and multiple channels of communication will be available, including phone, email, WhatsApp and SMS.

The GRM process encompasses five steps:

- Publicize the mechanism
- Receive and register complaints
- Review and investigate complaints
- Develop resolution options, respond to grievances and close out
- Monitoring and evaluation

The GRM Procedure will include:

- Ensuring the GRM is clearly communicated to workers and to the public and that mechanisms to provide feedback are established, including through a 'suggestion box' and through mobile communication;
- Documentation of the complaint in a Grievance Form through an interview with the person raising the complaint (carried out sensitively by a designated Kube Energy Somalia Grievance Officer)
- Review and investigation of the complaint, and direction the complaint to the appropriate level of management, depending on the nature of the complaint,
- Feedback to the person filing the complaint and a meeting scheduled to resolve the complaint (normally within 2 weeks of filing), and documentation of the resolution.
- If there is no resolution, the case can be referred for legal action as a last resort.

The GRM will include an approach to managing complaints related to SEA, GBV, or sexual harassment in a manner that is survivor-centred. This focuses on ensuring the response to the incident is in line with the wishes of the survivor and ensures their safety, respect, confidentiality and non-discrimination. The approach will protect confidentiality of individuals and preservation of evidence without compromising access to justice, while also enabling links to referral pathways and local organizations for support services. It will also aim to strengthen the speed and effectiveness of response, should such an incident occur, through well-functioning protocols and remedial actions to enable safe and ethical care of survivors.

Mechanisms to receive complaints

The project will designate in-country lawyers to receive and handle complaints through the GRM. These in-country contact persons will receive special training in handling cases related to GBV and sexual harassment in a manner that is sensitive to survivors needs and wishes, including ensuring they are equipped to connect survivors with non-legal support services. Training module on the Grievance Redress Mechanism and how it functions will be also provided to security guards.

In addition, the project has partnered with EthicsPoint to establish an anonymous reporting hotline to solicit information about suspected breaches of the project's ethics, discrimination, health, safety, environment, or governance policies. This hotline information will be made accessible to all Contractor employees and sub-contractors and its use should be encouraged. Reports can be made anonymously and securely and are shared with the legal and Human Resources leadership.

8.8 Monitoring Plan

The project proponents will be responsible for monitoring the risks identified in the ESMP and performance and compliance with E&S policies and plans. Contractors' compliance with E&S

and Human Resource policies will be incorporated as part of the contractors' management plans and will be given the same priority as other aspects of their performance. The following describes monitoring arrangements for certain components of the ESMP:

Monitoring Air Quality

During operations, the air emissions from the plant will be theoretically modeled using the quantities and type of fuel used, and the specifications of the generators, on an annual basis.

Workplace Monitoring

The project proponents EHS Manager will provide oversight over Contractors' compliance with the intent of the Human Resources policy and E&S policies and plans. This will include period inspection and labor audits to document Contractors' compliance.

Contractors will be required to have occupational health and safety monitoring programmes in place, including safety inspection and testing of equipment of tools in place, and to keep a record of this. Monitoring will include:

- **Compliance auditing**
    a) The Contractor's HSE officer will conduct monthly site audits of all construction related activities.
    b) On completion of the construction activities, the contractor's project supervisor together with Kube Energy Somalia's HSE Project Manager will conduct a site inspection. Any items requiring attention shall be included in a post-construction audit report.
    c) On completion of the defects liability period, Kube Energy Somalia's EHS Project Manager and the contractor with the view of determining whether outstanding matters from the post-construction audit have been adequately addressed.
- **HSE Incidents**
    a) The Contractor's HSE officer shall maintain a register of all HSE related incidents occurring as a result of the activities associated with the contract. HSE related incidents that shall be recorded include (but are not limited to):
        - Fire
        - Accidents
        - Fires
        - Spills of hazardous materials that contaminate soil or water resources;
        - Non-compliance with the ESMP.
    b) Each HSE related incident will be investigated by the project supervisor and an incident report forwarded to Kube Energy Somalia's HSE Project Manager. An incident report will be presented within three working days;
    c) HSE incident reports will include as a minimum, a description of the incident, actions taken to contain any damage to the environment, personnel or the public, and the corrective actions to repair/remediate any damage; and

d) Prescribe additional measures that may be required to remediate damage resulting from the incident and/or to prevent similar incidents occurring in the future.

- **Training**
  The contractor is responsible for ensuring that their workers are provided HSE training and relevant site inductions and orientation. In addition to formal training, the contractor should undertake tool-box talks. A training register will be kept on site for all training conducted as proof for auditing purposes. The HSE training will include but not limited to the following:
    - The importance of conforming with all HSE policies;
    - The HSE impacts of the proposed activities;
    - HSE benefits of improved personal performance;
    - Worker roles and responsibilities in achieving conformance with the client's HSE policy, procedures and this ESMP including associated procedures and emergency preparedness and response requirements;
    - Potential consequences of departure from specified operating procedures
    - Mitigation measures required to be implemented when carrying out their work activities.

- **Equipment maintenance**
    - All construction plant and equipment, tanks and machinery shall be maintained in a good state of repair throughout the construction period.
    - Equipment maintenance will be carried out on an impermeable surface.
    - Leakage from equipment will be prevented by regular inspection and repair.
    - Should a leak or equipment malfunction be detected, appropriate personnel shall be notified immediately and every effort made to prevent further leakage.

<u>Monitoring Waste Management</u>

A register will be maintained for all hazardous wastes and e-waste. This will specify types and quantities of wastes and means of storage and/or disposal. Waste manifests will record the non-hazardous solid wastes removed from the site, as well as the disposal of waste water, by qualified local contractors. This will include recording the quantities of waste removed, the details of the contractor who will transport the waste, the transit points and final destination of the waste, and the intended method of treatment, disposal, storage, re-use, recycling or disposal off-site. Contractors will provide monthly and annual waste reporting. The project proponents' EHS Manager will review these reports and the waste manifests, and provide overall oversight over the waste management contractors.

Annex 1

Stakeholder Engagement Report
*** This report has been redacted to protect the anonymity of stakeholders interviewed**

1. Introduction

This report has been prepared by Environmental Management Consultancy (EMC) to present and compile the findings of the stakeholder consultation process undertaken in Somalia in February 2022 in connection with the ESIA for the proposed Kube Energy Somalia solar PV power plant in Baidoa. EMC carried out face-to-face consultations with:

- Government and district administration officials
- Non-governmental organizations
- Community representatives

In addition, several remote interviews (via WhatsApp, Teams) were held with UN agencies and representatives of the Federal Government of Somalia (FGS).

The stakeholder consultations served several objectives, including i) introducing the project and its anticipated impacts to community members and other interested stakeholders, ii) allowing stakeholders to present their views of the project, and raise any concerns or suggestions and iii) establishing communication channels between the developer and key stakeholders in the project area.

2. Methodology

EMC employed a 3-step approach to undertake public consultation for the proposed project. During the inception phase, the consultant had a kickoff meeting with the client, key stakeholders who may be affected by or interested in the project were identified, and questionnaires were developed for carrying out stakeholder interviews. Thereafter, the consultant undertook a desk review of the context for the project in Baidoa, Somalia to understand primary aspects such as the governance structure, legal framework, tariffs, and the environmental and socio-economic context. The consultant carried out a site visit and in-person key informant interviews with stakeholders in Baidoa. The stakeholders included i) Government and district administration, ii) clan and community representatives, iv) women and youth group representatives, and a private waste management company. In addition, several interviews were carried out remotely with representatives of the FGS and UN agencies.

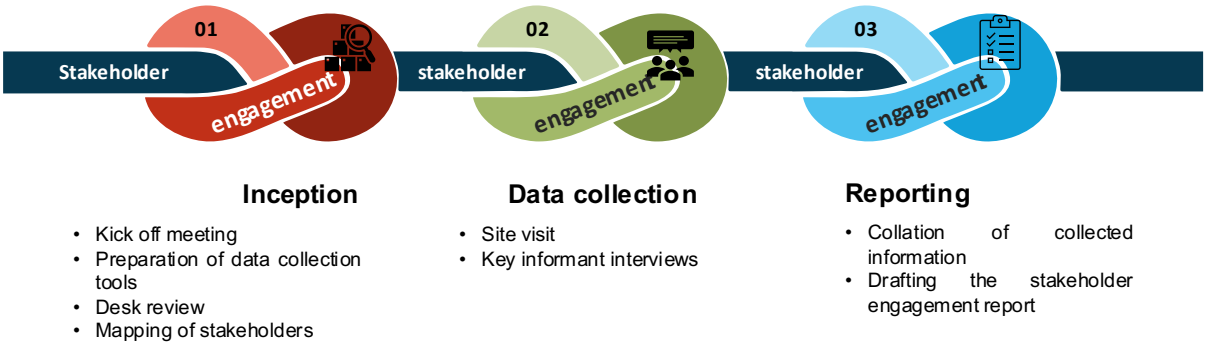


Figure 1: Stakeholder engagement process

The data collection phase began with a site visit to understand the nature of the environment at the site and in the surrounding area. EMC proceeded to undertake the key informant interviews during which we i) introduced the project to interviewees, ii) obtained their views on how the project would impact the community and the government, iii) got feedback on how the proposed project fit with the interviewee's activities/goals and iv) obtained information from government stakeholders on laws, policies, and regulations that developer would need to consider during project implementation. Each interview lasted between 30-45 minutes, including obtaining consent. Discussions were documented using pen and paper. A summary of the main points from each interview is presented in this report.

3. Outcome of the stakeholder engagement

In general, the respondents welcomed the project and saw it as a positive step towards developing Baidoa's renewable energy infrastructure. Government and UN representatives viewed the project as aligned with their policy and development goals related to climate change, and sustainable development, and development of Somalia's energy sector. In addition, respondents highlighted that the project would create local employment, generate revenue for government, and provide a model for similar projects in other locations in Somalia.

It emerged that much of the community in Baidoa lacks access to affordable and reliable electricity. As a result, there are high expectations that the proposed power plant will change this situation, especially after it is handed over to the South West State. However, the proposed power plant, during phase one, intends primarily to supply power to the UN compound, the GoSWS offices, and international organizations. There is potential to expand the plant in a second phase, however any distribution of power to local customers outside of the green zone would need to be via a registered local utility company. In addition, the installed capacity will not be sufficient to meet all of Baidoa's current and future energy demand. Nevertheless, the proposed project was viewed by interviewees as a step in the right direction to reduce tariffs which are prohibitively high for many customers, improve reliability in a context in which there

are frequent power outages and there isn't reliable 24-hour electricity, and promote the uptake of solar PV technology as an alternative to fully diesel-powered min-grids in Somalia.

Details of the stakeholder engagement are presented in Table 2 below. Several issues were raised during consultations with government officials that the developer needs to follow up, including:

1. Ensure that further information is provided to relevant State ministries about the project. This should include details of the project site and design that may be relevant to the future potential expansion of the airport infrastructure, as well as the technical assessment of the impact of glare on the flight path.
2. Ensure that information is provided to relevant State ministries on the land lease agreement, and that coordination takes place across government to follow the Urban Land Code (2022) (for instance, to register the land lease in the State Land Registry) once this and other structures and process to implement it are functional.
3. Monitor regulatory developments related to labour and employment, including following up with the relevant State Ministries regarding the SWS Non-Governmental Employees Act which was just approved by the State Parliament.
4. Ensure that a copy of the ESIA report and ESMP are shared with relevant State and Federal Ministries/services .
5. Clarify with the Baidoa district administration the requirements related to registration of the company, employees, and the land lease agreement.

Table 2: Responses from consulted stakeholders

Name of respondent	Organization	Comments
Government official 1	State Ministry	• The project aligns with the Ministry's policy objectives. • The project also proposes to generate power from solar, which will help alleviate greenhouse gas emissions. • The project will generate revenue for the government. The tax revenues will help provide services/rebuild the city of Baidoa. • The project will also create jobs for Baidoa residents. • The Ministry of Energy's environment department has drafted environmental guidelines that the developer could adopt. However, these guidelines are yet to be passed by parliament.

Name of respondent	Organization	Comments
		• The developer is advised to adopt municipal waste management systems regarding waste management.
Government official 2	State Ministry	• The developer's plan to supply electricity to State Ministries is highly welcomed since it does not currently have reliable electricity. • Using solar PV to generate electricity is vital since it will contribute to mitigating climate change and environmental protection, while creating opportunities for the poor who do not have access to basic necessities. • The State generally does not generate its electricity and depends upon private electricity suppliers. The long-term plan to hand over the project to the State will be beneficial both to the State and the residents of Baidoa. • Baidoa residents lack access to electricity at affordable prices to support productive uses of electricity. Thus, once the project is handed over to the State and residents use it for commercial activities, it will enhance revenue generation for the government. • Productive use of electricity will also support the creation of employment in the city, benefitting the entire community • The government will benefit once it inherits the project
Government official 3	State Ministry	• The project will contribute to environmental protection, and State will benefit economically [cost savings due to lower energy tariffs] and from reduced power outages. • The project can have a great impact on our work because it will generate government revenue that will be spent in ways that are especially beneficial for women. • Jobs are an opportunity for young men and women because there are few job opportunities in the

Name of respondent	Organization	Comments
		country. Young men and women should be given the opportunity to live in peace in their country. • The project should create opportunities for women especially in office-based roles. • Relevant Ministries have a significant role in implementing projects in all districts. Specifically, the developer should ensure that: a) Women's rights at the workplace are protected b) Women should not be discriminated against in the workplace c) Provides equal employment opportunities
Government official 4	State Ministry	• The projects align with the Ministry's and the country's aspirations to spur development while providing lessons to leaders that will enable quality service provision. • The project will generate revenue for the government through taxes and license fees and also create employment. • The project will have a multiplier effect for income generation for local people. • The project will help to address environmental problems such as air pollution and the decline of natural resources which contribute to poor living conditions and environmental degradation. • Relevant Ministries need to learn from any policies and regulations adopted by the developer of the project • The Ministry is currently developing policies and standards.
Government official 5	State Ministry	• The project will have various benefits including: (1) contributing to efforts to address climate change (2) reducing air pollution (3) lowering the price of electricity (4) attracting additional investment to Baidoa and SWS. • The project developer should abide by the municipal environmental regulations.

Name of respondent	Organization	Comments
Government official 6	State Ministry	• The proposed project is in line with the Ministry's objectives to improve infrastructure, protect the environment and facilitate the development of Baidoa • Currently, only one company (Baidoa Electricity Company) serves to generate and sell electricity in the city. • The project will also contribute to developing the town • The project developer should ensure that it adheres to relevant urban regulations. • The project should ensure quality controls from construction, operation and decommissioning
District official 1	District Administration	• The project is a welcome addition to the Baidoa municipality infrastructure. • Infrastructure is beneficial and Baidoa district may serve as a model for other districts in SWS. The project will positively impact the municipality once it is handed over to the government by increasing tax revenue. • Baidoa municipality has a department responsible for protecting the environment and a Director in charge of waste management. The municipality has its own health and pollution control and the developer should adhere to the following: a) Dispose of all garbage at designated locations outside the city. b) The developer must put in place measures to protect the environment from harm. c) The company must be responsible for any problems in the workplace that might lead to ecological damage and contamination. • With regard to employment, the municipality must provide a letter to casual and permanent staff. • All companies operating in the district are required to register with the district.

Name of respondent	Organization	Comments
		• Land acquisition should go through the municipal land department.
Government official 7	State Ministry	• It is very helpful for Baidoa to get solar PV technology from developed nations which will help Baidoa develop. • The project will also protect the environment by reducing emissions, unlike the conventional diesel generators. • The project presents several opportunities: a) It could potentially supply reliable electricity to key Baidoa infrastructure improving services b) The airport area is currently under expansion. The project develop could provide valuable expertise. • The Ministry was not aware of the preparation of the project prior to this, and should provide the necessary information, including design.
District Official 2	District Administration	• The Baidoa administration has had ambitions to have such a project to improve access to electricity for the community. • The current electricity distributor has limited capacity. Having another energy company will be beneficial. • The municipality applies the SWS laws. Employees working at the site will be required to submit letters of employment to the Baidoa administration.
Business Representative 1	Business	• The proposed project will contribute to lowering of electricity tariffs in the city. • The project will also increase job opportunities and generate revenue for the government through taxes and license fees.
NGO representative 1	NGO 1	• The NGO focuses on water sanitation and hygiene (WASH), food security, education, health, nutrition, protection and vocational training in SWS.

Name of respondent	Organization	Comments
		• Its target groups include IDPs, residents, marginalized communities, vulnerable people, returnees and host community. • The proposed project has no negative impact for our interventions in the community. Rather, it will have a positive impact because it is being built in an area that is currently unused and it will bring positive benefits for the community. • To have a greater positive impact on the community, such projects should be expanded to a wider area of the community and preferably to all districts that are accessible [from a security perspective]. • Currently Somalia is in a recovery period and donors are prioritizing emergency and humanitarian programmes. Large development and infrastructure projects [such as this] need commitment from government and development partners. Donors may be more willing to commit to long-lasting solutions if the security of their investment can be guaranteed.
Community Representative 1	Community group	• The project will create employment opportunities, especially during the construction phase. There would be employment opportunities during the operational phase as well benefitting residents of Baidoa. • The contractor and workers may have challenges accessing the site since it is tightly guarded with strict checkpoints. • The proposed project will have minimal adverse impacts during construction and operation since it seems well planned. The following strategies could help the project to have a stronger positive impact: • The developer should undertake early preparation activities before handing over the power plant to the government in 15 years.

Name of respondent	Organization	Comments
		• Communication and participation of the community should take place in a safe and accessible location [since access to the site is in a restricted area]. • The developer should consider undertaking community awareness programs on the importance of solar power. • The best way of engaging the community is through awareness programs, training and participation in the construction and operation of the project. • Support the employment of youth and women, and use local traders and companies to promote development.
Community Representative 2	Community Group	• The community will benefit in different ways. For example, it will generate income for the individuals hired as manual workers during the construction and operation. • The local contractor will also benefit the project, and there will also be a market for suppliers of construction materials. • The proposed power plant will not have a negative impact, but it may not be adequate to meet the needs of all residents in Baidoa. • There should be investment in a large scale power plant that would meet the power needs of the entire community. • The developer should continue engaging with and consulting with the community. • Consider carrying out awareness activities on the project, building the capacity of institutions and further needs assessment of the community.
Community Representative 3	Community Group	• The project will contribute to improving incomes for those hired (directly and indirectly) during its construction and operation, thereby improving their lives. • The project would contribute to reducing electricity tariffs hence unburdening many needy residents and saving them money.

Name of respondent	Organization	Comments
		• The project will also benefit local contractors and material suppliers hence improving the local economy. • If something has negative impacts, I would say so, but the proposal to generate electricity using solar PV barely has negative impacts. • The developer should consider creating awareness about the benefits of solar energy in the community through posters, radio and television.
Community Representative 4	Community Group	• The project will contribute to supplying Baidoa with reliable electricity. • It could also provide employment opportunities to vulnerable groups, including internally displaced persons in Baidoa. • The project will not have negative impacts on vulnerable groups, including IDP areas. • The developer could communicate further with vulnerable groups, including IDP communities through the regular community health worker visits and through community mobilization facilitated by relevant ministries
Community Representative 5	Community Group	• The proposed project will benefit young people in Baidoa since it will provide much-needed employment opportunities. Providing jobs for young people can help to prevent them from joining dangerous groups in the country. • Young people see this project as important because it is a visionary project that will inspire the Baidoa youth. • The project will help cater for the government's basic needs and the community's specific needs.
Community Representative 6	Community Group	• Solar PV is known for protecting the environment, and it will contribute to improving access to cheap electricity for the community.

Name of respondent	Organization	Comments
		• Currently, one company is distributing electricity in the area, and the tariff is too high for the community • Access to electricity would be beneficial to women. If women could use electricity for cooking this could reduce cooking times and also be cheaper. • Women collect firewood from remote areas putting them at risk of rape. It is possible to reduce the risk of rape with electricity through solar PV.
Business Representative 2	Business	• The main concern is to protect the environment together because when the environment is healthy, the community is healthy. • The project will have numerous benefits to the community meeting its basic power access needs • The developer should hire a waste collection company during construction to transport generated waste to designated areas a)
Government official 8	Federal Government	• There are ESIA regulations endorsed by Cabinet that await parliamentary approval. This is draft but these are being used. There are only minor issues being debated related to governance within the federal system. There is also the energy policy, climate change adaptation policy, and environmental management act. • For such projects, a key issue is the E-waste, which includes solar panels and used batteries, which is especially dangerous since it contains harmful chemicals (e.g. heavy metals such as mercury and lead, and endocrine disrupting substances such as brominated flame retardants). • After the ESMF is developed, small manuals should be prepared such as ESMPs for the contractor(s) and Environmental Health and Safety manuals. Community awareness and Grievance Mechanisms must also be put in place in case for complaints. For follow up, the contractor should submit compliance

Name of respondent	Organization	Comments
		progress report to the Ministry of Environment and project implementing organization. • The ESIA is a large and detailed document. So, manuals should be derived from the ESIA/ESMF to simplify the work for the contractor. • Appreciate if you share further details on the full project and the ESIA/ESMP once ready, to understand more and contribute to it and provide more advice.
International Organization Representative 1	International Organization	▪ The proposed project is in direct line with the global SDGs and the targets of the UN as an organization. The project will help the UN to reduce its environmental footprint, which given the current drought crisis affecting Somalia, is even more critical. It will also support AMISOM efforts, a key partner of the UN in Somalia. • The project is limited, in the first phase, to entities operating in the green zone, which means that the impact on the communities will be limited. A positive point is that it will contribute to empowering people of the SWS by transferring competences in the area of renewable energy and sustainability. It will also contribute to the sensitization of communities and government officials on climate related issues. • It is important for the project to strengthen awareness on climate change, particularly in the context of the current drought crisis. • If the first phase of the project is successful, it will be important to expand electricity provision to nearby IDP camps and help interconnecting sites with each other. But we understand that for this, additional investment will be required. • On gender related issues, this will have no impact given that the project will not deliver in the first phase electricity to the communities. If there is an opportunity to connect the Regional Hospital to the power plant, this can have a significant impact on

Name of respondent	Organization	Comments
		health care for women. In addition, it will be interesting to explore job opportunities for women during construction and operation of the power plant.
International Organization Representative 2	International Organization	▪ UN Secretary General has set targets of a 40% reduction of emissions all UN entities in peacekeeping environment by 2025. Trying to come up with an energy management plan to hit those reductions, but the UN struggles to deliver on targets. That is where there is a lot of interest and focus on partnerships with private actors. The Baidoa project is a shining light for the UN around the world. If it works it would be incredibly exciting and important. ▪ Some of the benefits of the project include: ▪ Reducing the UN's carbon footprint; ▪ Potential benefits for local communities if the minigrid system will provide them power; ▪ Help to get military and peacekeeping actors to realize they can use alternative energy as part of their energy systems; ▪ With solar power there are major savings on supply routes and on fuel oil. From a political and economic perspective, there is an economy in the fuel provision that is contributing to conflict. ▪ Big cost saving for the UN which could potentially lead to reallocation of resources to programme funding. ▪ It is a risk if the project does not expand access to electricity for the population in Baidoa it can undermine the sustainability of project, as it is important that the government and people see benefits. Should look into working with ILO or UNIDO to make complementary investments to expand energy access. ▪ There are many possible environmental considerations for a project such as this, including

Name of respondent	Organization	Comments
		issues of land use and space management at the project site, land tenure issues, water usage due to drought conditions, and waste management due to the lack of recycling facilities and often poor waste management practices. It is important to have an understanding of the population's energy needs as reliance on charcoal is a big aspect of life in Somalia.
International Organization representative 3	International Organization	▪ Recommend that the project focus on creating employment for women in technical management and operation of the plant. Somali women are very involved in local trade and run small businesses. However, they are not usually involved in construction work. Probably a very limited number of women will engage with that. ▪ Vegetation control and cleaning of solar modules could be a good role for unskilled women during operations. ▪ Women run small businesses related to food service, super markets, farming and businesses especially related to the household, so there may be opportunities as secondary service providers.
International Organization representative 4	International Organization	▪ The organization is supporting two areas that are potentially relevant: (a) women's economic empowerment with a goal of employment creation (b) supporting training centers that will prepare workers for technical roles in the renewable energy sector in Somalia. ▪ Two training centers have been established, which have trained 800 students on technical, electrical and solar skills, who it is expected will be employed in by private power producers. This included training female students/engineers. There could be potential for the Baidoa project to connect with the training center in Mogadishu for recruitment of skilled technical staff.

Name of respondent	Organization	Comments
International Organization representative 5	International Organization	▪ SWS hosts one of the largest IDP populations in the country, including many women and girls. ▪ Camp Coordination and Management Cluster (CCCM) has been working on solar lighting in IDP communities. ▪ We believe improved lighting will reduce GBV risks and increase safety of women and girls. 40% of violence takes place at night. Usually our organization does not construct such lights, however small portable solar lamps are distributed. ▪ We also work on preventing SEA and on health services. ▪ We do not think the proposed project will increase exposure of women and girls to GBV or affect their safety because it is inside the green zone. It is also far from the IDP sites.