APPENDIX D: Social Impact Assessment Study
Report for the proposed Kipeto Transmission
Line Project, Kenya

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Acronyms

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<th>Description</th>
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<tr>
<td>AIDS</td>
<td>Acquired Immune Deficiency Syndrome</td>
</tr>
<tr>
<td>CAPEX</td>
<td>Capital Expenditure</td>
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<tr>
<td>CLO</td>
<td>Community Liaison Officer</td>
</tr>
<tr>
<td>CSR</td>
<td>Corporate Social Responsibility</td>
</tr>
<tr>
<td>DOHSS</td>
<td>Directorate of Health and Safety services</td>
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<tr>
<td>EIA</td>
<td>Environmental Impact Assessment</td>
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<tr>
<td>EMCA</td>
<td>Environmental Management Coordination Act</td>
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<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
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<tr>
<td>GPS</td>
<td>Global positioning System</td>
</tr>
<tr>
<td>HIV</td>
<td>Human Immunodeficiency Virus</td>
</tr>
<tr>
<td>HSE</td>
<td>Health, Safety and Environment</td>
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<tr>
<td>ICT</td>
<td>Information and Communications Technology</td>
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<tr>
<td>IFC</td>
<td>International Financial Corporation</td>
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<td>KG</td>
<td>Kilograms</td>
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<tr>
<td>KIHBS</td>
<td>Kenya Integrated Household Budget Survey</td>
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<tr>
<td>KSHS</td>
<td>Kenya Shillings</td>
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<tr>
<td>NEMA</td>
<td>National Environment Management Authority</td>
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<tr>
<td>OPEX</td>
<td>Operational Expenditure</td>
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<tr>
<td>SEIA</td>
<td>Socio Economic Impact Assessment</td>
</tr>
<tr>
<td>SMP</td>
<td>Social Management Plan</td>
</tr>
<tr>
<td>STD</td>
<td>Sexually Transmitted Diseases</td>
</tr>
<tr>
<td>USD</td>
<td>United States Dollars</td>
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   a) Meeting with Sadera Farm Land owner on 22nd Feb 2013;
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iii) Consultation Meetings
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   b) Meeting with elders to discuss way leave easement agreement and payments, 17th April 2013;
   c) Meeting with a group of elders in Kajiado for an informal meeting 30th May 2013
   d) Near Solomon’s Home stakeholders meeting 1st June 2013;

iv) Awareness Meetings
   a) Public Stakeholder Awareness meeting held on 27th June 2013 at Esilanke Primary School and attended by over 200 people from within and without the project area. Including national and county government representatives, politicians, project partners and the general public
1 Introduction

1.1 Executive Summary

This is a social and economic impact assessment report of the proposed 220kV Kipeto Transmission line Project which is an associated facility to the proposed 100MW Kipeto Wind Energy project. This socio-economic impact assessment report has been undertaken to satisfy the requirements of the relevant International Finance Corporation (IFC’s) Performance Standards 2012, the Constitution of Kenya, the Environment Management and Coordination Act, 1999 (EMCA) and its subsidiary legislation.

The social impact assessment report is a key component of the Environmental and Social Impact Assessment (ESIA) carried out according to the principles of public participation and includes alignment with the IFC’s performance standards on stakeholder engagement. The report provides the socio-economic background of Kajiado County, and identifies impacts, enumerates their avoidance or where avoidance is not possible, their mitigation. The social management plan provides a guide covering the construction, operation and decommissioning phases of the transmission line project.

The Kipeto Transmission line project consists of above ground lattice structures from a sub-station at the Kipeto wind project site and runs for about 17 kilometers to the tarmac near Isinya before joining the proposed Kenya Power Isinya substation across the Nairobi Namanga road. The Kipeto wind Energy project is located about 70 km south-west of Nairobi in Kajiado County. The line will be designed, constructed and operated within the guiding framework of the Kenya Electricity Transmission Company (KETRACO) and operated by Kenya Power.

The approximately 17 km transmission line will be built, on easement approximately 60m wide and acquired from local Maasai land owners who will be compensated based on market land value and KETRACO guidelines. Potential impacts include disturbances due to increased traffic and noise, potential electromagnetic exposure and visual intrusion to the landscape. Stakeholder engagement included meetings for disclosure and those for informed consultations at venues accessible to landowners and interpreted in local Maasai dialect.

As an indigenous community, the Maasai may face potential impacts associated with their identity and livelihoods, as land use changes may lead to changes in traditional lifestyles. Potential benefit sharing based on the proposed Community Trust would contribute significant development benefits for the local community.

1.2 Overview of the SIA Process

The SIA commenced with consultations with the proponent regarding the general policy guiding the project, its goals and objectives. This was followed by an internal consultant’s round table in which various aspects of the project were discussed using a Google Earth mapped transmission line route. A reconnaissance visit was then executed in which base maps of the transmission line were uploaded on Trimble GPS units; this helped the Sociology team to walk through the full length of the proposed line and areas where the proposed line passed. A pictorial summary of the proposed transmission line route was then mapped on Google Earth and the stakeholder analysis and planning defined. A draft stakeholder engagement plan guided the data collection and consultation process.

Baseline profiling involved compilation of social and economic profile of Kajiado county including taking pictures for future use. The sources of information included the proponent, central and county government, government ministries, local administration and various studies and reports on the area. A mixture of desktop and interviews with various local offices was used to collect this information.
The profiling of the community stakeholders guided the development of and topics to include in the project disclosure of information package. Some information was developed using pictograms while two local guides (part of the SIA team) were provided with adequate training to facilitate the interpretation into local dialect and continuous household face to face engagements. Between 13 and 15 households were mapped to be under the proposed transmission line, half of which are large polygamous households and proposals for route review to avoid households where alternative were available proposed.

The project information disclosure package was used in the initial two convened meetings to provide the community with information about the project, the characteristics, the potential impacts and the needs of the project in terms of land, finances, labor and compensation where necessary. The community was then given time to digest the information internally, within their households and community.

The second round of meetings sought the community’s comments; the meetings were held in similar venues for convened meetings, and in individual households or community events for specific issues. In all types of meetings, informed consultation and participation was a key driver. A questionnaire was administered in all the meetings and entered into a statistical package for analysis. Pictorial mapping, participatory transmission line ground-truthing and discussion targeting gender and youth were helpful in building the final study report.

The potential socio-economic impacts were identified, discussed and a social risk matrix was used to determine the magnitude of each potential impact. Mitigation measures were then arrived at as indicated in Table 1.

Table 1: Potential Socio-Economic Impacts and Mitigation Measures

<table>
<thead>
<tr>
<th>Potential Risks</th>
<th>Risks Assessment and Results of Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Construction phase impacts:</strong></td>
<td></td>
</tr>
<tr>
<td>Destruction of fences and gates along the proposed transmission line access route;</td>
<td>Without Mitigation a low negative impact that remains a low negative with mitigation in which the integrity of the paddocks along the transmission line is not interfered with.</td>
</tr>
<tr>
<td>Impacts associated with construction disturbance: traffic, waste and noise impacts</td>
<td>Low Negative without mitigation and Low negative with mitigation.</td>
</tr>
<tr>
<td>Improved utilization of compensation payments</td>
<td>Low Positive without Mitigation and Medium Positive after mitigation.</td>
</tr>
<tr>
<td><strong>Operations phase impacts</strong></td>
<td></td>
</tr>
<tr>
<td>Potential exposure to Electromagnetic Fields (EMF)</td>
<td>Low negative without mitigation which remains low negative after mitigation and monitored over time as land use pressure changes.</td>
</tr>
<tr>
<td>Community participation in maintenance of transmission way leave</td>
<td>Low positive impact without mitigation that improves to medium positive when proposed mitigation is implemented.</td>
</tr>
<tr>
<td>Impacts associated with proposed benefits sharing mechanisms</td>
<td>Without the Community Trust guiding the development of initiatives that uplift the local community’s standards, the risk is a low positive. With mitigation and involvement of the community, the risk becomes a medium positive.</td>
</tr>
</tbody>
</table>
Potential Risks | Risks Assessment and Results of Mitigation
---|---
Lack of skilled indigenous workers | Without any mitigation, the risk is medium negative which changes to low negative after mitigation measures

1.3 Conclusions and Recommendations

The objective of the SIA study is to characterize the socio-economic baseline on which the transmission line project is proposed while ensuring full respect for indigenous Maasai people’s human rights, dignity, aspirations, culture and natural resource-based livelihoods. This will be achieved by proposing a mitigation framework that is managed within a system that includes participatory monitoring and evaluation in all the phases of the project.

In view of the positive impacts identified, as well as the community engagement, stakeholders’ consultations within the project area, it is unlikely that the proposed transmission line project and substation would adversely impact on the social environment of the indigenous Maasai.

Among others, the report recommends:

- The Proponent to consider including the transmission line community land owners and community in the Kipeto Community Trust and to enjoy the same benefits as one trust, within a benefit sharing plan that improves the lives of the community to their expectations.
- The proponent and other participating government agents should consider the possibilities of promoting the local identities and culture of the indigenous Maasai community by naming the pylons constructed within the area according to Maasai names proposed by the local elders.
- The proponent and relevant regulatory agents should consider a transmission way-leave that does not affect the integrity of the fences and gates demarcating individual land pieces and turning the way leave into a through road.
- All project activities should be managed with minimal impact to the local grassland resources both for domestic and medicinal values (where it is still practiced).
- A community safety plan should be integrated into both the construction and operations phase project management plans.
- The project should respect human rights of the local indigenous community in all aspects and should promote culture and identity as much as practically possible.
2 Introduction

This Socio Impact Assessment (SEIA) is a study of the direct and indirect benefits and costs of how a proposed transmission line project affect the Kipeto community, Kajiado county and national economy, determine, characterize and assess potential impacts therein, as well as develop and propose appropriate mitigate measures.

This section provides a brief description of the impacts assessment regime used for the SIA of the proposed Kipeto transmission line project, detailing each potential impact.

2.1 Description of the study area

The project social description is characterized from several perspectives mainly socio-geographical, social administrative, socio-cultural and economic perspectives. Socio-geographical description defines the geographical attributes of the project area and how those attributes define the social character of the population. The administrative set up of the people and how the community relates with formal and informal administrative structures.

Social impacts refer to the consequences to the local population of the project actions that alter the way in which the community live, work and relate to one another, meet their needs and generally live and cope as members of society. Economic impacts characterize the level and type of economic activities in the project area as a direct result of the project activities.

The project activities proposed at the pre-construction, construction, operations and decommissioning phases are analyzed and planned within the national and international standards using the above parameters and generate appropriate mitigation measures which then feed into a environment management system.

2.2 Project Study Area

The Kipeto Transmission Line project is an associated facility of the 100MW Kipeto wind farm project. The Kipeto Transmission line project is an above ground grid of lattice structures from a substation at the Kipeto wind project site and runs for about 17 kilometers to the tarmac near Isinya before joining another substation across the Nairobi Namanga road as shown in Figure 1. The Kipeto wind Energy project is located about 70 km south-west of Nairobi in Kajiado County. It is predominantly a rural area with the economy dominated by livestock farming as the key driver and employer.
Figure 1: Approximate Transmission Line Route

1 Image courtesy of Google Earth July 27, 2013
2.3 Legislative and Performance Standards Framework

This Social Impact Assessment (SIA) is a component of an ESIA Study of the project and is being coordinated on behalf of the proponent by Kurrent Technologies Ltd as the firm of experts appointed by the Proponent to complete the EIA Study in accordance with Legal Notice (L.N.) 101: Environment (Impact Assessment and Audit) Regulations 2003 promulgated under the Environment Management and Coordination Act, 1999. The Transmission line project is also required to comply with the Energy Act, 2006 and its subsidiary legislation.

Social sustainability of the project is characterized by among others, performance standards developed by the IFC’s Sustainability Framework. Performance Standard 1, for example requires that a project be undertaken in accordance with a recognized environment and social management system (ESMS). Such system are designed to help avoid, mitigate and manage risks and impacts as a way of planning the project in a business in a sustainable way. This includes stakeholder engagement and disclosure obligations of project-level activities. Performance Standards 2 on Labour and Work conditions; Performance Standard 4 on Community Health, safety and Security; Performance Standard 5 on Land Acquisition and Involuntary Resettlement; Performance Standard 7 Indigenous People and 8 on Cultural Heritage are considered in this Social Impacts’ Assessment study.

The Land Act 2012, the Devolved Government Act 2013 and the Way Leaves Act (Cap. 292), Land Acquisition Act (Cap 295); and other list of new legislation under the new constitution would be considered in the social impacts study.

Requirements of legislation and international standards have been included in a Social Management Plan that includes project monitoring and evaluation.

2.4 Study Goals and Objectives

The goal of this study is to identify the social impacts, risks and opportunities of the Kipeto Transmission line project and to help avoid, minimize and where residual impacts remain, to compensate/offset for risks and impacts to workers and affected communities.

The study provides a strategic analysis of the local social assets envisaged by the construction, operation and decommissioning of the transmission line project. This will become the framework for making recommendations regarding optimization and mitigation of the predicted impacts.

Subsequently, the SIA study’s objectives are:

a) To develop a socio-economic profile characterizing the Kipeto Transmission Line project;

b) To ensure the development of the Kipeto transmission line fosters full respect for the human rights, dignity, aspirations, cultural and natural resource-based livelihoods of the indigenous Maasai people.

c) To define and analyze the potential socio-economic impact on the communities located in the local area and Kajiado County.

d) To collect their representative views on the project and integrate their contributions into the design and implementation of the project.

e) To recommend possible mitigation measures for adverse socio-economic impacts.
2.5 Data Collection Methods

The SIA study also comprised discussions and consultations with the proponent and stakeholders; initial site reconnaissance, desk study and literature review, preparation of data collection instruments; field visits for consultations, discussions with local administrations officials, and observations; data analysis and reporting.

After consultations with the proponent and guided by the proponent’s policy on the project, then building on information collected during the scoping study and background secondary information from the Kipeto Wind Energy project, the social impacts data collection methodology was a two way process with two objectives of informing the project affected participants and secondly after providing sufficient time for internal dialogue, doing a second round of project consenting.

Considering the requirements of a Free Prior Informed Consent (FPIC) and in tandem with IFC Performance Standard 7, considering the Kajiado Maasai community as an indigenous community, the following two-stage process informed consultation and participation:

i) **Informing**: this phase included general ground-truthing walk through the project transmission line route to have a physical characterization of the socio-economic aspects and informal introductory meetings with various households within the proposed wayleave route.

ii) **Project consenting** provided forums through which after discussing the risks impacts and opportunities the project provides, the community provided its own consent or objections.

A series of stakeholder consultation forums disaggregated by gender and youth was the venue in which project images were shown, project description provided and project impacts discussed.

The baseline profiling was done for the county in general and Kajiado North Constituency in particular, where the project is located. The profile include: i) demography; ii) Education; iii) Employment level and labor force; iv) Housing; v) Transport; vi) Health;

Secondary data sources, including official government statistical documents, in addition to IFC Performance Standards documents, continuous clients’ consultations, various legislative documents, the new Kenyan Constitution and the *Kipeto Wind Energy Project Social Impacts Assessment Study* report were among others the reference documents used for this study.
2.6 Stakeholder Engagement

A stakeholder engagement plan (SEP) was developed and comprised the following activities:

2.6.1 Stakeholder analysis

Stakeholder engagement was planned to be continuous through the pre-construction, construction and operations phase of the project. A stakeholder consultation plan has been developed to guide consultations during the various project stages and document outcomes.

Analysis of stakeholders included identifying community members with land parcels in the proposed transmission line route and their neighbors and public institutions and facilities including schools and water points. The trained local guides were then mobilized to visit each member of the community affected and invite them to a information baraza meeting to be held on an agreed date.

2.6.2 Stakeholder planning

Mapping of the affected community in the approximately 17km transmission line route were showed that about 6 large families who took almost 80 percent of the total land distance covered by the wayleave. Two central meetings points were identified dividing the community into two groups. Enarau Primary School for the community members with land from the area near the Telkom booster is located to around the area where the school is located. The Naserian AIC Church was venue for the community members whose parcels are towards Namanga Road and also cannot make it to the Enarau Primary school venue.

2.6.3 Information Dissemination

Project disclosure information package was developed during planning meetings. The disseminated information included:

i) General information about characteristics of transmission lines.
ii) Images of transmission line pylons to be constructed and the power lines.
iii) Process of construction of pylons and its actual construction needs.
iv) Construction and operations labor, materials, financial and land needs.

At the end of the study, copies of the Environmental and Social Impact Assessment (ESIA) Study will be disclosed to the community through their representatives, the national and county regulatory body (NEMA) and also the county government offices, in which the impacts and mitigation measures will be further discussed.

2.6.4 Disclosure meeting

The trained local guides mobilized the target communities and organized meetings at venues located and accessible to most groups and guided by the proposed transmission line stakeholder analysis.

The first three formal general meetings were held for the purposes of disclosure of project information. A3 size Pictograms of construction and operations stage pylons were used for the information and disclosure meetings mainly held under the tree of in the church verandah. Participatory ground-truthing of the proposed transmission line route was also done to share various experiences and discuss potential impacts and mitigation.
The following were the disclosure Information open Baraza Meetings:

a) Enarau Primary School Baraza 15th February 2013
b) Nesarian Church Baraza 16th February 2013
c) Administrative leaders meeting 22nd February 2013

<table>
<thead>
<tr>
<th>Figure 3: Enarau Primary School 15th Feb 2013 Information Meeting</th>
<th>Figure 4: Participatory Mapping of Transmission line route to show the community it does not pass in people’s households</th>
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</thead>
</table>

### 2.6.5 Informed consultation and participation

Formal and informal meetings set the ground for proper consultations and discussion of various impacts. At the request of the affected community information meetings, households were encouraged to discuss internally at family level the potential implications and fears about the project. The SIA team shared the same through the second round of formal meetings and informal household meetings with large households where making decisions was prolonged. This iteration was important in building understanding and consent.

The two local guides (Ezekiel and Wilson) were trained and have experience on project and associated with the wind power project from inception. They interpreted all the convened meetings in the local Maa dialect where further understanding and emphasis was required even though majority could understand the national language used in the meetings.
The guides are also the main sources of local communication for the project during the pre-construction and construction stage. They were also very helpful during the household visits and informal discussion groups with family members in their homes. There are six key households with large parcels of land which the proposed transmission line crosses. These are large families who needed additional one-on-one meetings in addition to their participation in the general convened meetings.

The proximity of the affected community to the Kipeto wind project, the sharing of previous information related to stakeholder engagement and the similarity in lifestyles for the community made it easier for the engagement to be thorough and successful.

**Consenting Baraza Meetings**

a) Meeting with Sadera Farm land owner on 22\textsuperscript{nd} February 2013;

b) Enarau Primary School Baraza 22\textsuperscript{nd} February 2013

c) Nesarian Church Baraza 23\textsuperscript{rd} February 2013

d) Meeting with individual Household family heads key affected large parcels of land 23\textsuperscript{rd} February 2013

**Consultation Meetings**

a) Enarau Primary School Baraza 28\textsuperscript{th} February 2013

The informed opinion and consultations of the community stakeholders contributed to the generation of mitigation measures for the project. Meetings with the local Chief and Assistant chief was critical and helped to guide the formal engagement with administration and further discussion of the project in local Chief’s Barazas which contributed to better understanding and informed debate of the project information.

The study is built on the guidelines of provided by the stakeholder engagement plan which provides for continuous consultations, overview and sharing information between proponent and community during construction and operations stages of the project.

### 2.7 Technical Details of Kipeto Transmission Line

The project components that would require land easement agreement to create a transmission line corridor approximately 60 meters width and 17 Kilometers in length. The substation and the initial 5km are located in one piece of land after which a series of pieces of land of various sizes mostly large all the way to the Nairobi - Namanga road.

#### 2.7.1 Support Structures

Lattice steel self-supporting towers are recommended for all transmission lines. The recommendation result from an overall evaluation of lattice steel structures versus pole structures (single pole or H-frames) of wood, concrete or steel. Although wood and concrete structures could involve a 20-30% cost savings on structures compared to conventional lattice steel structures the performance of wooden poles has proved poor due to their short life time and subsequent poor reliability and very high operational and maintenance costs.

Solid concrete poles are manufactured locally but their reliability is low. The high weight (above 4 tons) of these poles also involves higher transport and erection costs as heavy lifting and erection equipment is required emphasizing line sections with poor access conditions. Internationally manufactured hollow spun concrete poles or steel poles could prove competitive to lattice steel structures due to lower maintenance and way leave costs but the same considerations with respect to transport and erections costs would apply.
2.7.2 Foundations

Based on the observation of the ground conditions during the line route surveys conventional pad & chimney foundations, and reinforced concrete pad & chimney foundations are recommended by the design engineer. On certain sections where poor soils or submerged conditions are identified a raft type design will be required. Hard rock foundations are not foreseen but weathered rock exists which might require heavy excavation equipment and supply of imported backfill for the pad & chimney foundations.

2.7.3 Grounding

All towers will be permanently grounded with an individual tower footing resistance. Over the first 1.5 km or 3 to 4 spans out of any substation, all towers, including the terminal towers, would be connected together by continuous counterpoise cable, which also should be connected to the substation-earthling grid.

2.7.4 KETRACO Compensation Guidelines

Kenya Electricity Transmission Limited (KETRACO) was incorporated in 2008 to develop new high voltage electricity transmission infrastructure and registered under companies Act as a subsidiary of the Government and regulated therefore under the State Corporations Act, Cap 486. The Core business is to plan, design, build and maintain new electricity lines and associated sub-stations. These new lines usually built on land way leave include 132KV, 220 KV, 400KV, and 500KV High Voltage Direct Current (HDVC). KETRACO acquires land for transmission line way leave and compensates for at a standard rate. The KETRACO rates are about 20 percent of the market rates of land within the area. Negotiations with land owners based on this figures were unfruitful.

The project proponent would negotiate a market based rate with each landowner. The proponent proposes to pay each land owner about 70 percent of the market rates subject to an independent valuation and consistent with market rates of land in the area.

2.8 Project Construction Activities

The key activities in putting up the transmission line include digging of four holes, assembling of structures, concrete casting, and stringing of the conductor.

a) Erection of the lattice structures (pylons) will involve delivery of complete structures, physical assembly at site and laying using cranes. The steel structures will be assembled on site. They will have rivets and will be bolted. Strong aluminum rollers will be used to hoist the structures and in exceptional situation helicopters can be used.

b) The foundations of the lattice structures/pylons will be dug manually then casting concrete are used. The depth will be a minimum of 5m. The depth will be determined after geotechnical study is undertaken.

c) Vegetation clearing will be done manually by use of pangas and slashers. Where there are big trees, portable power saw mills (petrol powered) will be used.

d) The average height of the line will be between 30-40 meters this will depend on clearance from KCAA.

e) Modes and quantity of transport vehicles employed in the project will be approximately three Lorries and 4x4 vehicles. Maintenance of these vehicles will be done through licensed garages found in the project area. There will be no on-site maintenance of vehicles.

f) Powered equipment expected to be used in the construction include power saw mills, and compressor to break had ground (if required).
g) The mode of cooling that will be used in transformers will be transformer mineral oil.

h) During the operation phase of the project, way leaves will be maintained through manual vegetation clearing. Once the lattice towers are erected and structural integrity established, minimal maintenance is required. Routine aerial inspection and ground inspection will however be done annually.

i) Approximately 10 unskilled labour, five artisans, 2 technicians and three engineers will be employed in the project during construction.

j) Substation buildings that are dedicated for housing instrumentation and for storage would then be erected. During the commissioning stage, the substation equipment including electrical switchgear and transformers would be installed and connections made into the substation from the new and existing transmission lines.

2.9 Operations Phase

Once constructed, the transmission line will require minimal maintenance. Periodical, mostly yearly visual inspection of the Pylons and conductors is expected. After a period of many years, the entire system would need a detailed survey and overhaul. There may be a requirement for occasional visits to remove tree or branches where these start to grow too close to the Pylons. Access rights may need to be retained to allow for maintenance works in the future. Once a while, individual pylons that are worn out or weak in one way or the other will be replaced.

2.10 Decommissioning Phase

The transmission line and substations are likely to remain in place for many years and therefore decommissioning works would be a long time in the future. Towers and substations would be dismantled and removed and materials recycled/re-used as far as possible. Any areas disturbed would be restored to pre-project conditions and/or to conditions acceptable to NEMA. Environmental impacts associated with the decommissioning process would be minimized through the implementation of an environmental management plan (EMP).

2.11 Impact Assessment Regime

The identification and evaluation of socio-economic impacts for the construction and operations phase of the transmission line project. The main objective is to determine the social risks and opportunities positive and adverse impacts of the transmission line project. Identification includes both technical view and stakeholder understanding and valuation of their socio-cultural assets that will be directly affected by the project footprint.

Kurrent Technologies Ltd developed an assessment matrix for evaluating the socio-economic risks. The matrix provides potentially significant impact assessment with regard to:

a) The nature of the impact (including the status which may be positive, negative or neutral);

b) The extent and duration of the impact;

c) The probability of the impact occurring;

d) The degree to which the impact can be reversed;

e) The degree to which the impact may cause irreplaceable loss of resources; and

f) The degree to which the impact can be mitigated.
Impacts were assessed using the above parameters and then the significance criteria were used based on \( RISK = (\text{Extent} + \text{Duration} + \text{Magnitude}) \times \text{Probability} \).

**Table 2: Table showing the descriptors of various risk elements**

<table>
<thead>
<tr>
<th>EXTENT</th>
<th>MAGNITUDE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Localized (At localized scale and a few hectares in extent)</td>
<td>Small and will have no effect on the environment</td>
</tr>
<tr>
<td>Study area (The proposed site and its immediate environs)</td>
<td>Minor and will not result in an impact on the processes</td>
</tr>
<tr>
<td>Regional (County level)</td>
<td>Low and will cause a slight impact on the processes</td>
</tr>
<tr>
<td>National (Country)</td>
<td>Moderate and will result in process continuing but in a modified way</td>
</tr>
<tr>
<td>International (Beyond Kenya)</td>
<td>High (processes are altered to the extent that they temporarily cease)</td>
</tr>
<tr>
<td></td>
<td>Very high and results in complete destruction of patterns and permanent cessation of the processes</td>
</tr>
</tbody>
</table>

**DURATION**

| Very short (0 – 1 Years) | 1 |
| Short (1 – 5 Years)      | 2 |
| Medium term (5 – 15 years) | 3 |
| Long term (>15 years)    | 4 |
| Permanent                | 5 |

**PROBABILITY**

| Highly improbable (<20% chance of occurring) | 1 |
| Improbable (20 – 40% chance of occurring)    | 2 |
| Probable (40% - 70% chance of occurring)      | 3 |
| Highly probable (>70% - 90% chance of occurring) | 4 |
| Definite (>90% chance of occurring)           | 5 |

Method used to determine the environmental risk

Risk = (Extent + Duration + Magnitude) x Probability

**Figure 5: Significance criteria used for the SEIA of the proposed project**
Table 3: Table showing impact significance rating

<table>
<thead>
<tr>
<th>Low</th>
<th>&lt;30</th>
<th>Where this impact would not have a direct influence on the decision to develop in the area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medium</td>
<td>30-60</td>
<td>Where the impact could influence the decision to develop in the area unless it is effectively mitigated</td>
</tr>
<tr>
<td>High</td>
<td>&gt;60</td>
<td>Where the impact must have an influence on the decision process to develop in the area</td>
</tr>
</tbody>
</table>

Confidence of assessment

<table>
<thead>
<tr>
<th>The degree of confidence in predictions based on available information, Kurrent Technologies Ltd. judgment and/or specialist knowledge</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
</table>

2.12 SEIA Mitigation Measures and Management Plan

The purpose of this step is to highlight implications of the establishment of the Kipeto Transmission Line Project on the identified transmission route passing through the individual lands. To determine the social welfare of the local communities and the regional economy, interpretations are based on the outcomes of the impact assessment exercise.

The step concludes with a list of recommendations that specify possible mitigation measures to maximize the positive effect and minimize adverse effects of the construction and operations phase. A social management plan has been developed for the operation phase to ensure that the Transmission line Project is run in a socially acceptable manner. It includes mitigation measures that cannot be included in the design phase of the project.

2.13 Assumptions and Limitations

In any SIA Study, there will always gaps in knowledge or uncertainties encountered. For the proposed project, the following assumptions were made in undertaking the SIA Study as listed below.

a) The SIA team utilized secondary data (Economic survey 2011, Population and Housing census Surveys) including reports from other related studies. It was assumed that the information about the demographics and social status of communities living along the Transmission line easement from these sources is accurate;

b) Most of the statistics obtained from secondary data sources were on a district level and not constituency or project specific level. Some statistics were validated through public/stakeholder consultation meetings and quantitative data specific to project areas;

c) The study was done with information, timeframes and budget lines available to the consultants at the time of the study. The sources consulted may not be exhaustive and additional information which strengthen arguments, contradict information in this report and/or identify additional information might exist. However, the consultant did endeavor to take an evidence-based approach in the compilation of this report and did not exclude scientific information relevant to the assessment within stated limit options;

d) People’s actions can never be predicted with 100% accuracy, even when circumstances are similar and predictions are based on rigorous research results.
3 Social and Economic Baseline

The section is a strategic understanding of the socio-economic profile of the study area against the county and national economy. The main objective of this section is to develop a better understanding of the socio-economic performance as a background to the development of the project.

3.1 Overview of the Transmission Route

The proposed transmission line project runs diagonally through the constituency of Kajiado North from the location of the substation 1, connected to the wind turbines generating power to another substation along the Nairobi Namanga road approximately 18 kilometers south east, less than 10 kilometers from Isinya Town. The whole project area is within Kajiado County and is predominantly rural with a significant Indigenous Maasai community and growing migrant communities.

3.1.1 Kajiado North Constituency

The constituency is predominantly rural and boasts some major towns like Isinya Town as its main urban centre. The other towns of Ongata Rongai are in the constituency. The current Member of is Moses Sakuda. The area is still predominantly Maasai community, sparsely populated and mainly involved in livestock farming.

3.1.2 Kajiado County

The County population is about 687,312 people and is divided into three constituencies of Kajiado Central, Kajiado South and Kajiado North where the project is located. The County Governor-Elect is Dr. Nkedianye. The County Senator is Engineer Mositet and the Women Representative is Mary Seneta. The Ward Representative for the Project area is George Sukuyia. The county governor and County Assembly offices are at formerly Ole Kejuado Municipal Council Offices in Kajiado Town.

The main urban centres are Kajiado Town itself, Ongata Rongai, Ngong, Isinya, Kiserian, Sultan Hamud and Kitengela towns. The County is considered the richest by county national figures though the disparities are very big.

A vast portion of the county of Kajiado is inhabited by the Maasai, whose livelihoods depend on livestock, which in turn rely on the sustainable use of the rangeland. While this land was traditionally Group Ranch land in the mid-1980s, the process of sub-division was undertaken with little thought about the negative impacts of the sub-division on the well-being of the land, the Maasai or Wildlife. The sub-divisions were hastily finalized without a sound framework for further use of common resources, which has greatly decreased the pastoralists’ resilience to droughts and other ecological shocks. The Kipeto Wind farm lies in Zone D of the Kitengela-Isinya-Kipeto development plan area. The Land use Master Plan is an effort to coordinate development within the area.

Over the last 30 years, the human population of Kajiado District has increased four-fold, or by 4.7% a year (Republic of Kenya, 1982). At least half of this increase was due to immigration. In 1979 the population of Kajiado County was estimated at 149,000 or an overall density of 7.6 people/km2; the population density in pastoral areas was approximately 5 people/km2 (CBS, 1981).

The economy of Kajiado County is still dominated by the Maasai, who are largely pastoralists, but rain fed farming largely by non-Maasai has taken over as a significant economic activity in higher agricultural potential areas. Irrigated cropping has also been increasing along river valleys and in swampy areas. The main areas for irrigated cropping are along the Ngong Hills, along the Nolturesh River in the Kimana area, in the Kilimanjaro foothills and around Namanga.
Other major economic activities in the county include tourism from the Amboseli National Park and mining of soda from Lake Magadi. The National Park is a major tourist attraction, but provides limited revenue for the County and generates little employment for the local people. The soda ash mine employs about 600 people, with several employees being immigrants from other districts.

Kajiado County is well served by a network of all-weather roads and by a railway. In addition, numerous roads that are passable in the dry season penetrate the interior of the County. This network effectively links the urban and trading centers in the County, and public transport is readily available.

<table>
<thead>
<tr>
<th>KAJIADO COUNTY SOCIAL STATISTICS</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Fully Immunized Households less than 1 year old in 2010/11</td>
<td>30.9</td>
</tr>
<tr>
<td>2. Malaria as percentage of all first outpatients visits</td>
<td>22.6</td>
</tr>
<tr>
<td>3. Households that have access to improved water</td>
<td>72</td>
</tr>
<tr>
<td>4. Households with access to Sanitation</td>
<td>74.2</td>
</tr>
<tr>
<td>5. Paved Roads in the County</td>
<td>5.9</td>
</tr>
<tr>
<td>6. Households that Have Electricity</td>
<td>39.8</td>
</tr>
<tr>
<td>7. Households who delivered in a Health Facility</td>
<td>39</td>
</tr>
<tr>
<td>8. Households who had all vaccinations</td>
<td>70.7</td>
</tr>
<tr>
<td>9. Households that Have persons with primary education</td>
<td>62</td>
</tr>
<tr>
<td>10. Households that have secondary education</td>
<td>12.5</td>
</tr>
</tbody>
</table>

### 3.2 Kajiado Socio-Economic Profile

The key economy and employer in the County is livestock farming in the vast rural areas. The urban economy includes bee keeping, manufacturing, mining and Tourism. Lack of good infrastructure of roads and communication has slowed down the potential productivity.

The Maasai women make exquisite jewelry to sell on market days. Kajiado offers the following attributes:

i) Picturesque view

ii) Tourist destinations such as the Amboseli National Park and the Rift Valley escarpment

iii) Tropical wildlife

There are a number of educational institutions including primary, secondary and universities mostly found in the urban community. However, in the rural settings the primary schools are sparsely populated with children travelling as far as 4km to learn.

Temperature ranges from minimum of 12\(^\circ\) to a maximum of 27\(^\circ\) and the average rainfall us between 500 – 1250mm. This makes the County’s climate to be of semi-arid nature and a lot of wildlife thrives in that area. There has been, in recent years, a longer period of drought where there has been little or no rain.

Livestock such as cattle, goats and sheep are the primary source of income for the Maasai. The livestock serves as a social utility and plays a key role in the Maasai economy. They trade the livestock for other livestock, cash or buy food and other crops. The male Maasai are considered assets and they provide labor services and also to inherit both land and the livestock.
3.2.1 Demography

The population of Kajiado is 687,312 (Male 50.2% and Female 49.8%) according to the 2009 Kenya Population and Housing Census Report. This has been translated into the graph below. Kajiado North has area as district has a population of about 193,081 according to the 2005-2010 District Development Plan. Isinya District has a population of about 104,266 as per 2010 estimates from the district plan records.

The current estimated population growth rate is about 4.5 percent per annum and life expectancy at birth is 43 years. While population is predominantly Maasai, the County is also occupied by a growing number of non-Maasai communities such as the Kikuyu, Kamba, Luo, and Somali especially within the urban centers of Ngong, Kiserian, Ongata Rongai, and Isinya. A large proportion of these are immigrants seeking or building residential home as and in search of work opportunities as a result of the strong commercial and construction industry that has driven the county economy over the last recent years.

3.2.2 Land

**Land adjudication and subdivision** of group ranches dominating land use in the region in the past has let to individual land tenure that contributed to land sales to immigrant communities and opened the area previously under strictly livestock farming to other types of economic activities including educational institutions, residential gated communities, and commercial farming using drip water and greenhouses in the more agriculturally potential areas.

**Land Use:** The Maasai are a pastoral people with livestock forming the basis of their economic livelihood, the focus of social relations, and a critical element of ethnic self-definition. With most of the area being arid and semi-arid, ranching and livestock production form the dominant land-use. As you approach the Nairobi Namanga Road, land use changes with commercial and educational institutions increase in number. There are a number of primary schools, secondary and university institutions being built along the area as the transmission line meets the main road.

3.2.3 Employment and Labor force

The key employer in rural Kajiado County is livestock farming and a large number of male adults graze cattle. They protect the homestead, maintain water sources for the community, and protect the livestock from wild animals and theft. Wealth is measured by the number of land owned by a household and the number of animals they keep. This is as opposed to the increasingly urban immigrant population whose economy in the recent years is driven by construction industry as more build homes and more residential and commercial housing facilities are constructed in the major towns bordering Nairobi.

<table>
<thead>
<tr>
<th>Socio-Economic Indicators (2000)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Households Size (number of people)</td>
<td>4.2</td>
</tr>
<tr>
<td>Absolute Poverty (Rural and Urban)</td>
<td>28%</td>
</tr>
<tr>
<td>Income from Agriculture</td>
<td>44%</td>
</tr>
<tr>
<td>Income from rural self-employment</td>
<td>10.6%</td>
</tr>
<tr>
<td>Wage employment</td>
<td>45.3%</td>
</tr>
<tr>
<td>Urban self-employment</td>
<td>6%</td>
</tr>
<tr>
<td>Number of unemployed</td>
<td>20%</td>
</tr>
</tbody>
</table>
3.2.4 Health & Education

There are only two (2) district hospitals which are far and limited in staff, medical facilities and drugs. Access and accessibility to good health services is a basic and crucial issue in the County.

![Kajiado Education Levels](image)

3.2.5 Transport

The prevalent mode of transport is foot. Public transport and public transport are secondary. The County’s road networks are poor and gaining access to health and educational facilities is gruesome.

3.2.6 Housing

Several households in rural Kajiado are constructed using galvanized iron sheets (commonly known as Mabati). Most homes in the Kipeto area are traditionally built by women, constructed of branches woven together with grass and smeared with cow dung on the walls. The homes are built in a large circle that serves to protect an inner kraal (Commonly referred to as bomas). All houses are either owned or self-constructed.

![Kajiado County Households by main type of Roof Material for Main Dwelling Unit](image)
3.2.7 The LUMP and Kipeto Transmission line project

The proposed Kipeto transmission line project will be developed within the Kajiado Land Use Management Plan (LUMP) framework for Zone D (Kipeto Region) under which the wayleave runs through. While the project description and technical components do not go against the premise of the integrated development planning, it calls for strict management of the environment to ascertain certain standards proposed in the integrated development master plan are respected.

According to the LUMP, the general permitted land use for Zone D includes:

a) Livestock production minimum Land size 24 Ha.
b) Wildlife Production/Promotion – Minimum Land size 24 Ha.
c) Limited Farming
d) Restrict Commercial Activities in Oletepes
e) Promote Eco-Tourism
f) 10% of the Land to be planted with Environmentally-Friendly Trees.
g) Prepare Action Plans
h) Prepare Environmental Action Plans (EAP) for Environmental Sensitive Areas.
i) Permit Eco-Friendly Development in selected Areas.
j) Primary access roads size 9m;
k) Wildlife promotion and Eco-Tourism
l) Annual Environmental Audits.

These are to be considered in assessing impacts that need to be assessed in the three phases of construction, operations and decommissioning. The project is currently located in an area designated as agricultural land under the Master Plan. For the sub-station building permits to be considered the land on which it is to be constructed has to be converted into commercial use.

3.3 Stakeholder Consultations

This section provides an overview of the community consultation and participation process for the proposed project. It is based on field work information carried out by the project SEIA team, analysis and conclusion drawn from those discussions guided by the IFC’s Performance Standards 1, 2, 4, 5 and 7, the constitution of Kenya, national EIA regulations and other relevant legislations and references.

3.3.1 Project Area Community Engagement

A stakeholder participant survey was carried out and the data entered in a statistical spreadsheet (SPSS). Given below are the outcomes of the surveys; for the sample taken, the respondents were mainly male 92%.
Majority of the respondents said they were Livestock farmers. 40% said they had lived in the area all their lives. 82% of the respondents said they were land owners along the Kipeto transmission land area and only 1% said they were neighbours.

The age distribution was also defined mainly by parents and elder sons of various families within the household. Most households are polygamous and sons representing various wives were present. The families are relatively large as is the majority of the land in which the transmission line passes. 64% mentioned livestock farming as the only economic activity they are engaged in while 30% said they also had some business activities apart from livestock farming.
Majority of the respondents’ participants ranked Community projects as the highest perceived benefit they expected (19%). Majority mentioned community projects like schools, health facilities (the whole project area has only one at Oliyangalani); others mentioned bringing electricity to their community including the schools and church.

17% mentioned compensation for land taken as their highest perceived benefit. Compensation for land taken drew a lot of discussions with inquiries as to how the compensation is calculated, how much land is taken, issues related to one off payment verse annual and or periodical payments.
3.4 Capital Expenditure and Operational Expenditure

The total capital and operational expenditure of the project is about KShs 400,000,000. This cost includes:

<table>
<thead>
<tr>
<th>Capital Expenditure</th>
<th>Operational Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project development costs</td>
<td></td>
</tr>
<tr>
<td>Consultancy Services</td>
<td>Management Costs</td>
</tr>
<tr>
<td>Capital Equipment and services</td>
<td>Maintenance Costs</td>
</tr>
<tr>
<td>Compensation for easement land</td>
<td></td>
</tr>
</tbody>
</table>
4 Social Impacts Assessment

4.1 Introduction

This section is a detailed description of the potential social and economic impacts associated with the pre-construction, construction and operations phases of the Kipeto Transmission Line project. The transmission line social and economic impacts are characterized from indigenous people’s perspective under Performance Standards 7, bearing in mind the stringent requirements of the Bill of Rights as defined by the New Constitution of Kenya.

The development of the transmission line should foster full respect for the human rights, dignity, aspirations, culture, and natural resource-based livelihoods of indigenous Maasai Peoples. Characterization of the social and economic impacts of the transmission line project is weighted towards adding to all the above principles objectives.

4.2 Criteria for determination of social impacts

The identification of social impacts was in general guided by:

a) IFC Performance Standard 1 Requirements: Social Risks, Impacts and Opportunities
b) IFC performance Standard 7 Requirements: Indigenous Peoples
c) The Bill of Rights and Chapter 5 (Land & Environment) of the new Constitution
d) Relevant Legislation

Ground-truthing observations and stakeholder engagements exercising professional skill, diligence, prudence and foresight balanced with stakeholder views and socio-economic baseline, and technical realities of the transmission line project, helped determine which social impacts associated with the project.

The type, scale and location of the identified impact was then characterized in an assessment regime and supported by the confidence levels of the specialist.

4.3 Social Impacts Assessment

4.3.1 Construction Phase Impacts

4.3.1.1 Destruction of Fences and Gates

Presently, a number of land owners have erected paddock fences and gates to keep their livestock from going astray or getting lost; some of paddock fences and gates cross the proposed transmission line wayleave. From the field surveys conducted, it is likely that the project may cause potential security concerns if construction would lead to removal of paddock fences and gates that separate individual livestock farm lands. The construction phase has to manage livestock farming among alternative neighbours even as they built access routes and transmission line itself.
Impact without mitigation: Destruction of Fences and Gates

<table>
<thead>
<tr>
<th>EXTENT</th>
<th>MAGNITUDE</th>
<th>DURATION</th>
<th>PROBABILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

Result: LOW (-24)

Mitigation/Comments:
- The EPC Contractor should avoid destruction of the fences and gates during construction and return them as they were or better after construction is complete to maintain paddock gates and fences to keep the integrity of individual paddocks

Impact with mitigation: Destruction of Fences and Gates

<table>
<thead>
<tr>
<th>EXTENT</th>
<th>MAGNITUDE</th>
<th>DURATION</th>
<th>PROBABILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Results: LOW (-8)

CONFIDENCE : High

4.3.1.2 Impacts associated with construction disturbance:

During the construction phase, the excavation of soil for pylon erection will loosen the soil along the Way leave occasionally; temporary access roads to construction sites will have to be created where they did not exist before and this will result in displacement/loosening of top soil in the affected sections.

a) Construction Traffic: During the process of construction, some dust and exhaust fumes will be generated from the construction vehicles (5 Lorries and 4 off-road vehicles) as they make their way through the mainly dry and perched terrain in the parts of the project areas the proposed transmission line corridor. In some areas the ground conditions are rocky and therefore there will be need to use a compressor to break hard ground. These processes will lead to dust generation and exhaust fumes.

b) Hazardous Substances: Use of engines (construction vehicles) and other equipment on site has the potential to lead to spillage of petroleum products. It is however worth noting that the risks of a major oil spillages occurring are minimal because only a few construction vehicles (approx 5 lorries and 4WD vehicles) will be needed in the construction of the transmission line. Highly-refined, mineral insulating oils will be used to cool transformers and provide electrical insulation between live components.

c) Solid Waste Generation: During the construction period, solid waste will be generated from the actual construction activities (packaging materials, excess materials, recovered materials, among other waste) and from the workforce itself (waste in the form of food, wrappers, bottles, containers, cartons, and other disposable or personal items). The workforce on site at any given time is relatively small (approximately 15 in number) however the accumulative impact of waste generation can create a significant problem if mitigation measures are not made available.

e) Construction Noise pollution: The noise impact during construction is expected to be negative but short term. Sources of noise will be trucks and the off-road vehicles in transit, use of compressor to break hard ground and the use of motorized chain saws for vegetation clearing. Impacts of noise include noise-induced hearing loss and/or nuisance for the project workers and the affected settlements.
Impact without mitigation: Impacts associated with construction disturbance:

<table>
<thead>
<tr>
<th>EXTENT</th>
<th>MAGNITUDE</th>
<th>DURATION</th>
<th>PROBABILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

Result: LOW (-28)

Mitigation/Comments:
- The Contractor to develop and implement a construction HSE management plan to manage the impact of construction disturbances on the environment.
- Contractor should manage contraction traffic especially its impact on grassland resources.

Impact with mitigation: Impacts associated with construction disturbance:

<table>
<thead>
<tr>
<th>EXTENT</th>
<th>MAGNITUDE</th>
<th>DURATION</th>
<th>PROBABILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Results: LOW (-8)

CONFIDENCE: High

4.3.1.3 Improved utilization of compensation payments

The compensation payments proposed are attractive considering that the local community is usually dependent on an irregular income based on livestock sales. It is anticipated that compensation payments made to transmission wayleave affected land owners will be utilized for beneficial socio-economic purposes to progress their livelihoods. This is seen as a positive impact to the affected land owners along the transmission line wayleave who sign easement agreements with KEL.

Impact without mitigation: Improved utilization of compensation payments

<table>
<thead>
<tr>
<th>EXTENT</th>
<th>MAGNITUDE</th>
<th>DURATION</th>
<th>PROBABILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

Result: LOW (+12)

Mitigation/Comments:
- The transmission line wayleave land owners and their families should be provided with basic training on financial management through financial institutions available in towns like Kajiado and Isinya.
- The land owners should be provided with legal training through the proposed Community Trust to enable them safeguard their wealth from compensation payments.

Impact with mitigation: Improved utilization of compensation payments

<table>
<thead>
<tr>
<th>EXTENT</th>
<th>MAGNITUDE</th>
<th>DURATION</th>
<th>PROBABILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>2</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

Results: MEDIUM (+32)

CONFIDENCE: Medium
4.3.2 Operations Phase Impacts

4.3.2.1 Exposure to Electromagnetic Field (EMF)

The establishment of a way leave and the need to have limitations of land use are mitigations measures which help manages the effects of EMF on public health.

Scientific research has not demonstrated any significant impacts of EMF from conventional 30-40m high transmission lines. The finding and conclusions are that the field strength on a 132 kV line at the distance of exposure heights of 30-40m is less than what one would ordinarily be exposed to in a domestic setup.

| Impact without mitigation: Electromagnetic Field (EMF) Exposure: |  |
|---|---|---|---|
| EXTENT | MAGNITUDE | DURATION | PROBABILITY |
| 1 | 4 | 1 | 3 |

Result: LOW (-18)

Mitigation/Comments:
- The proponent develops and administers a community sensitization plan
- The proponent manages the limits for building houses as pressure on land increases.

| Impact with mitigation: Electromagnetic Field (EMF) Exposure: |  |
|---|---|---|---|
| EXTENT | MAGNITUDE | DURATION | PROBABILITY |
| 1 | 2 | 1 | 2 |

Results: LOW (-8)

CONFIDENCE : High

4.3.2.2 Maintenance of transmission line way leave

During the operational phase, the transmission line wayleave will require periodic maintenance to ensure that the grasses do not grow too large. Additionally it will be important to ensure that paddock fences and gates erected by the land owners to keep their livestock within their parcels are not destroyed by Kenya Power during transmission line maintenance operations. Thirdly, it will be important to ensure that the wayleave is not utilized as an informal road by vehicle drivers.

During public meetings, the local community expressed their interest of being provided with employment by Kenya Power for purposes of security and surveillance. The employment of local Masai youth to ensure that the wayleave is always maintained in a good state would be a positive social impact.

| Impact without mitigation: Maintenance of transmission line way leave: |  |
|---|---|---|---|
| EXTENT | MAGNITUDE | DURATION | PROBABILITY |
| 2 | 4 | 4 | 2 |

Result: LOW (+20)

Mitigation/Comments:
- Kenya Power should consider providing employment to local youths in the transmission line project area for keeping the vegetation height to management levels.
- The proponent should engage land owners in maintaining the gates and fences throughout the operations period;
Kenya Power should consider providing motor bikes to riders who can survey the transmission line periodically to ensure that paddock fences and gates are intact and that there is no trespassing.

### Impact with mitigation: Maintenance of transmission line way leave:

<table>
<thead>
<tr>
<th>EXTENT</th>
<th>MAGNITUDE</th>
<th>DURATION</th>
<th>PROBABILITY</th>
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<tbody>
<tr>
<td>2</td>
<td>6</td>
<td>4</td>
<td>4</td>
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</table>

Results: MEDIUM (+48)
CONFIDENCE: High

#### 4.3.2.3 Impacts associated with proposed benefit sharing mechanisms

The potential benefits in terms of community projects that arise from being part of the community trust significantly changes the fortunes of the Maasai in the community. The community lacks many social facilities which they hope the project through the trust would develop. While the details related to the relationship between the transmission line land owners and land owners in the wind energy project are to be detailed in the community trust document, the expectations arising from this potentially improves the security of the community.

### Impact without mitigation: Impacts associated with Benefit Sharing mechanisms:

<table>
<thead>
<tr>
<th>EXTENT</th>
<th>MAGNITUDE</th>
<th>DURATION</th>
<th>PROBABILITY</th>
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<tbody>
<tr>
<td>2</td>
<td>2</td>
<td>5</td>
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</table>

Result: LOW (+18)

**Mitigation/Comments:**

- The proponent should consider including the Kipeto transmission line community in the Kipeto Wind Energy Community Trust mechanism and access funds for community projects within a benefit sharing plan. 
- The contractor should consider local youth in unskilled jobs available both during construction and way leave maintenance during operations phase.

### Impact with mitigation: Impacts associated with Benefit Sharing mechanisms:

<table>
<thead>
<tr>
<th>EXTENT</th>
<th>MAGNITUDE</th>
<th>DURATION</th>
<th>PROBABILITY</th>
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<tr>
<td>3</td>
<td>6</td>
<td>4</td>
<td>3</td>
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</table>

Results: MEDIUM (+39)
CONFIDENCE: High

#### 4.3.2.4 Lack of skilled workers

The proposed transmission line will require skilled, semi-skilled and unskilled labor for the construction and operational phase of the project respectively. Currently the local Masai community has limited skilled and semi-skilled workers among the families. Disciplines such as back-hoe excavator operators, crane operators, etc. are limited among the community. This will imply that in the absence of skilled and semi-skilled workers, the plum jobs may be offered to people from other parts of Kenya to the detriment of the local Masai community.

### Impact without mitigation: Organizational Capacity Impacts:

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<tr>
<th>EXTENT</th>
<th>MAGNITUDE</th>
<th>DURATION</th>
<th>PROBABILITY</th>
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<tbody>
<tr>
<td>2</td>
<td>4</td>
<td>2</td>
<td>4</td>
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</table>
Result: MEDIUM (-32)

Mitigation/Comments:

- The proponent to develop and implement a social and environmental organizational capacity development performance plan that includes designated management, human resources, financial systems.
- The organizational capacity development plan should include a Human Resource Management plan that has a Training system for implementation to achieve the objectives of the Plan.
- All sub-contractor standard social and environmental guidelines for third parties working on the project.
- An Emergency preparedness and Response plan in consultation with the community.
- Community participation in the proponent’s established monitoring and review system

| Impact with mitigation: Impacts associated with Benefit Sharing mechanisms: |
|-----------------------------|--------|------|---------|
|                             | EXTENT | MAGNITUDE | DURATION | PROBABILITY |
|                             | 2      | 2        | 2        | 2           |

Results: LOW (-12)

CONFIDENCE : High
5 Social Management Plan/Mitigation Plan

5.1 Community Safety Management Plan

A social management plan consistent with IFC’s Performance Standard 1, its objectives and principles describes mitigation and performance improvement measures and actions that address the identified social risks and impacts of the transmission line project on partners, staff and project affected community.

The management plan takes into account the engagement with the indigenous Maasai community in with Performance standard 7 addresses specific safety aspects raised and those in the judgment of the social specialist are necessary to meet the benchmarks of performance standard 4 on community health, safety and security.

The Contractor, the proponent Project manager will be responsible for development of the full Community Management Plan. There will be an overlap between this plan and the Social Management Plan.

The objective of the management plan is:

- To ensure the health safety and security of the Maasai community members is not affected by the transmission line project at construction or operations phases;
- To generate safety awareness in local communities to ensure they are pro-active in managing their own safety with regard to the transmission line;
- To minimize the impacts on Maasai culture, identity as a result of the project and maximize the benefit sharing opportunities for the local communities affected by the project at construction and operations activities continue.
- To manage any grievances arising from the whole transmission line way leave project during the construction and operations.

In line with these objectives, specific targets will be set and negotiated with the contractor. For example, a target is likely to be set around ensuring no major health or safety incidents affecting community members.

The Kipeto Energy/Contractor Project Manager will be accountable for providing assurance during the construction phase that the above objectives and agreed targets are met.

The Kipeto Energy/Contractor HSE Manager will have responsibility for monitoring activities during both construction and operation. Major health and safety incidents such as fatalities or serious accidents will be reported by community liaison immediately.
5.2 Social Management Plan

The Social Management Plan (SMP) predicts and plans responses for certain common and specific social impacts that may occur throughout the operations activities for the Kipeto Transmission Line Project. A social management plan is necessary for adequate management of these social impacts.

This SMP contains the measures to be implemented in the different phases of execution or operation of the project, in order to promote positive outcomes and decrease or minimize the adverse impacts that may arise. It incorporates some recommendations on how to handle community safety throughout the project cycle.

The table below summarizes all the necessary mitigation measures, allocation of responsibilities, time frame, minimization and monitoring of all potential impacts associated with the lifecycle of the transmission line.
# Table 4: Social Management Action Plan

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Impacts</th>
<th>Social Management Action Plan</th>
<th>Responsibility</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local infrastructure, services and natural resources</td>
<td><strong>Access Roads for construction and operations</strong>&lt;br&gt;Access roads may be damaged due to pressure from heavy machinery during the construction phase.&lt;br&gt;During the operations, 3-5 trucks are expected on a daily basis within each construction spread. This will put a lot of pressure on the roads.</td>
<td>All roads being used by the project should be well maintained, and left in as good state, or better than their current state.</td>
<td>Contractor and Proponent</td>
<td>Construction phase of the Project</td>
</tr>
<tr>
<td></td>
<td><strong>Road Upgrading</strong>&lt;br&gt;The access roads leading to the Right of Way from the main highway will be upgraded to suite transmission line components transportation needs;</td>
<td>Involve the community during road upgrades. The Proponent should also consider upgrading roads that will be used by the project with minimal local grassland impact.</td>
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<td></td>
<td><strong>Water Supplies</strong>&lt;br&gt;The project may strain the existing water resources especially during the construction phase.</td>
<td>The Proponent should clearly identify the amount of water required for the project and should work closely with the community to avoid straining the already meager water resources available for livestock and humans</td>
<td></td>
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<td></td>
<td><strong>Increase in traffic and traffic related impacts on grassland resources</strong>&lt;br&gt;There will be increased traffic on the roads and off-roads during project activities, and the associated increased incidence of</td>
<td>A traffic management plan should be developed for all vehicle drivers given the importance of least effect on grassland and respect of local grazing livestock.</td>
<td>Contractor</td>
<td></td>
</tr>
<tr>
<td>Aspect</td>
<td>Impacts</td>
<td>Social Management Action Plan</td>
<td>Responsibility</td>
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<td></td>
<td>grassland destruction.</td>
<td>Engagement of local land owners in management of way leave sections under their land for a fee would help integrate their informed participation and planning</td>
<td>Kenya Power</td>
<td></td>
</tr>
<tr>
<td><strong>Maintenance of transmission line way leave</strong></td>
<td>Grassland management and balancing wildlife resources for the social cultural activities may be affected by land clearing standards proposed for transmission line</td>
<td>Mapping out of access roads and strict driving instructions, and maintaining adherence to way leave land boundaries</td>
<td>Contractor and all sub-contractors</td>
<td>Throughout the construction and operations</td>
</tr>
<tr>
<td>Indigenous Maasai people’s identity and culture</td>
<td><strong>Grassland resources</strong></td>
<td>Various project activities depending on when they are carried out can have cumulatively high short term impacts on scarce grassland resources</td>
<td>Reconstruction of fences and gates after construction and maintenance of their integrity within a way leave management system.</td>
<td></td>
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<td></td>
<td><strong>Fences and gates management</strong></td>
<td>Way leave maintenance plan may come with the need to have a clear way throughout which has the potential of opening a road through paddocks and causing conflicts among neighbours.</td>
<td></td>
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<td></td>
<td><strong>Community relations</strong></td>
<td>Throughout construction and operations phases, construction workers and maintenance personnel, drivers and consultants should be trained on community relations, within respect and dignity as expressed in the constitution</td>
<td>The contractor should develop a code of conduct to guide the employees on how to relate with the community to avoid conflicts; Human Rights of all should be respected irrespective of their rights awareness;</td>
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<tr>
<td>Aspect</td>
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<td>Social Management Action Plan</td>
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<td>Compensation for easement</td>
<td><strong>Land compensations valuation</strong>&lt;br&gt;There is a high expectation in relation to specifics about compensation for Way leave land taken. Management of these expectations without significantly affecting project participation is important</td>
<td>Proponent engagement meetings should be as clear as possible and be ready to deal with issues related to:&lt;br&gt;- Legal educations and localized service demands&lt;br&gt;- Land survey and boundary issues&lt;br&gt;- Financial education&lt;br&gt;- Compensation expectations</td>
<td>Proponent</td>
<td></td>
</tr>
<tr>
<td>Benefit Sharing Plan</td>
<td><strong>Kipeto Community Trust</strong>&lt;br&gt;The community proposed benefits that can best be achieved if the proponent and Kipeto community expanded and formalized engagements of the transmission line communities in the benefits of the Kipeto Community Trust established for land owners under the wind energy project.</td>
<td>Guiding principles for determining how to participate, who should participate and which projects can be proposed to the community Trust. The community proposed priority areas including:&lt;br&gt;- Expansion and better stocking of Oliyankalani Health facility which also benefits the Kipeto wind energy community.&lt;br&gt;- Educational facilities like Enarau Primary Schools&lt;br&gt;- Electricity for the local Church at Naserian.&lt;br&gt;- Local road and water facilities expanded;&lt;br&gt;- Sponsoring children to further education especially girls.</td>
<td>The Proponent</td>
<td>Throughout the operations phase</td>
</tr>
<tr>
<td>Aspect</td>
<td>Impacts</td>
<td>Social Management Action Plan</td>
<td>Responsibility</td>
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<tr>
<td>Community safety</td>
<td>Risks associated with Electro Magnetic Field (EMF)</td>
<td>✓ Business and employment opportunities for youth and locals in general; ✓ Grassland management systems including tree planting and water erosion management systems; ✓ Tourism potential investments and facilities that help locals take advantage of resources available including wild animals.</td>
<td>Proponent</td>
<td>Throughout the operations phase</td>
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<td>The Proponent will include appropriate design measures to limit the effects of EMF on livestock and humans, e.g. requiring that no routine activity occurs on the 60m wayleave, livestock and humans move quickly beneath the transmission lines, etc.</td>
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6 Conclusion and Recommendations

6.1 Conclusions

To achieve the main objectives of the SEIA study which are to characterize the socio-economic baseline on which the transmission line project is implemented while ensuring full respect for indigenous Maasai people’s human rights, dignity, aspirations, culture and natural resource-based livelihoods. This is achieved by proposing a mitigation framework that is managed within a system and includes monitoring and evaluation in all the phases of the construction and operations phases.

In view of the positive impacts identified, as well as the community engagement, stakeholders’ consultations, within the project area, it is unlikely that the proposed transmission line project and substation, would adversely impact on the social environment of the indigenous Maasai. The impacts identified prudently managed by the mitigation measures would reasonably suffice.

The major resource based livelihoods revolve around the grassland areas and the threat from general changes in land use. Structured benefit sharing significantly improves the vulnerability of the community identity and culture is reasonable. The community repeated the request for project benefit sharing in all the stakeholder forums.

An effective Social Management Plan (SMP) is however cognizant of the possibilities related to the risks as defined by all stakeholders. The community aspirations should be addressed in a way the community feels part and parcel of the project throughout the construction and operational phase of the project.

A participatory and empowering approach to the SMP would help mitigate this issue especially misinformation about the risks related to wind projects wide spread in the area. By providing effective and targeted information and participation structures for delivery of social services under CSR, the community would feel the project added value to community.

6.2 Recommendations

(1) This assessment recommends that transmission line Project Committee should provide a locally based community liaison officer to continuously engage the community with factual information and promptly responding to their concern.

The CLO will be a member of the community employed by the Proponent who will act as a go between the proponent and the community. She/he will articulate issues from the community to the Proponent and vice versa.

(2) Kenya Power engagement with the community to learn from their expectations and work out a negotiated middle point that motivates the land owners to participate in the transmission line project.

(3) The Proponent should consider including the transmission line community land owners and community in the Kipeto Community Trust and to enjoy the same benefits as one trust, within a benefit sharing plan that is bottom up.

(4) The proponent and Kenya Power should consider the possibilities of promoting the local identities and culture of the indigenous Maasai community by naming the pylons constructed within the area according to Maasai names proposed by the local elders.

(5) The proponent/Kenya Power should consider a transmission way leave that does not affect the integrity of the fences and gates demarcating individual land pieces and turning the way leave into a through road.
(6) All project activities should be managed with minimal impact to the local grassland resources both for domestic and medicinal values (where it is still practiced).

(7) A community safety plan should be integrated into both the construction and operations phase project management plans.

(8) The project should respect human rights of the local indigenous community in all aspects and should promote culture and identity as much as practically possible.
Figure 6: ENARAU Primary school

Figure 7: Participatory Mapping of the Transmission line

Figure 8: NASERIAN 23RD FEBRUARY 2013

Figure 9: ENARAU 22ND FEBRUARY 2013

Figure 10: SHOWING THE PROPOSED LINE

Figure 11: ENARAU 28TH FEBRUARY 2013