Lake Turkana Wind Power Project, Kenya

IFC Performance Standards on Social & Environmental Sustainability

Project Review

May 2011

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Project Review Report
May 2011

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Acronyms

AfDB	African Development Bank
AP	Angle Point
BCS	Broad Community Support
CDM	Clean Development Mechanism
CEP	Community Engagement Plan
CO_2	Carbon Dioxide
CSR	Corporate Social Responsibility
CSRP	Corporate Social Responsibility Programme
EHS	Environmental Health and Safety
EMF	Electric and Magnetic Fields
EIA	Environmental Impact Assessment
EPRP	Emergency Preparedness and Response Plan
ESIA	Environmental and Social Impact Assessment (also referred to as EIA)
ESMP	Environmental and Social Management Plan
FPIC	Free Prior Informed Consent
HIV	Human Immuno-deficiency Virus
IBA	Important Bird Area
ICNIRP	International Commission on Non-Ionizing Radiation Protection
IFC	International Finance Corporation
IDC	International Development Corporation
KCAA	Kenya Civil Aviation Authority
Ketraco	Kenya Transmission Line Company
KPLC	Kenya Power and Lighting Company
kV	Kilovolts
LTA	Lost Time Accident
LTWP	Lake Turkana Wind Power Consortium
MWe	Mega Watt Electricity
NEMA	National Environmental Management Authority
NGO	Non-Governmental Organisation
NMK	National Museums of Kenya
OHS	Occupational Health and Safety
PAP	Project Affected Person
PCB	Polychlorinated Biphenyls
PCDP	Public Consultation and Disclosure Plan
Project	LTWP windfarm and external access road upgrade

PS	Performance Standards
RAP	Resettlement Action Plan
RoW	Right of Way
RPF	Resettlement Policy Framework
SF_6	Sulphur Hexafluoride
STI	Sexually Transmitted Infection
SW	Scott Wilson
TMP	Traffic Management Plan
UNFCCC	United Nations Framework Convention on Climate Change
V52	Vestas V52 Turbine
WHO	World Health Organisation
WMP	Waste Management Plan

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Executive Summary

Project Overview

The Lake Turkana Wind Power Project is of significant strategic benefit to Kenya. It aims to provide 300MWe of wind energy to the national grid, equivalent to 20% of the current installed electricity generating capacity. The windfarm site is located in Marsabit District some 50km north of South Horr Township and at least 8km east of Lake Turkana. The 'Project' will comprise a wind farm with 365 wind turbines, associated electric grid collector system and a high voltage switchyard. The Project also includes upgrading of the existing road from Laisamis to the windfarm site, a distance of approximately 200km, as well as plant and equipment lay-down areas, and access road network in and around the site for construction, operations and maintenance purposes.

The Project proponent is the Lake Turkana Wind Power Consortium (LTWP), comprising of Sponsors Aldwych International, Industrial Development Corporation (IDC) and KP&P Africa B.V (KP&P), who will be responsible for the construction of the windfarm and the upgrading of the existing road from Laisamis to the windfarm site.

The generated power will be transmitted via a proposed 400kV transmission line that will run from the windfarm site to a new switchyard in Suswa, a distance of approximately 428km. Suswa village is located some 60km north-west from Nairobi and the proposed switchyard site is uninhabited/ open ground. The construction of the transmission line is the responsibility of the Kenyan Government through the newly formed State owned power transmission line company - Ketraco. Ketraco will own the transmission line and have a tolling arrangement with the utility, Kenya Power and Lighting Company (KPLC). The proposed transmission line will be primarily funded by the Spanish Government and constructed by a Spanish contractor overseen by Ketraco. This transmission line development is considered an 'associated facility'.

This Report

In order to ensure that the Project is developed and implemented in accordance with the provisions of the International Finance Corporation (IFC) Performance Standards (PS) on social and environmental sustainability, LTWP commissioned Scott Wilson consultancy to carry out a review of the existing environmental and social study reports undertaken for the proposed developments against IFC standards/Equator Principles. The aim of this commission was to identify any areas where the standards have not been met and to make recommendations, as necessary, to facilitate compliance through the subsequent phases of the project development, design, construction, into operations and finally decommissioning.

Approach

The approach taken involved reviewing the principal documents considered to be relevant to the Project. These documents included the Environmental Social Impact Assessment (ESIA) reports prepared for the wind farm, the proposed upgrade of the existing road network and the associated transmission line. It also involved in-country meetings with the report authors, a site visit comprising a drive of the length of the proposed road upgrade, two days site walkover survey and a visual survey of the transmission line from Suswa to Project site via helicopter.

The ESIA reports formally approved by the National Environmental Management Authority (NEMA) of Kenya are the Lake Turkana Wind Power Project EIA Study Report, May 2008 and the EIA Project Report – Proposed 400kV Power Transmission Line from Loiyangalani to Suswa Transmission Line EIA Report,

July 2008. The NEMA consents for the windfarm and transmission line are in the form of two licences and associated conditions. The approvals are not subject to any specific scheme design and the conditions attached are generic in nature. The approval is granted on the basis that all relevant sub-approvals are obtained and that all relevant environmental laws and by-laws are adhered to and that the design, construction and operation avoid significant impact upon sensitive receivers.

The African Development Bank (AfDB) is mandated as lead debt Finance Arranger, and it has undertaken its own process of project review. The ESIA report for the windfarm was updated in 2009 to accommodate comments raised by AfDB.

Regulatory Position

Windfarm –The revised ESIA report includes an increase in the number of wind turbines from 100 to 365. Whilst the NEMA approvals are broad in nature, the windfarm scheme is currently different from that approved due to a design change necessitating the downsizing of the wind turbine generators and subsequent increase in the number of turbines. It is recommended that this issue should be discussed with NEMA in order to determine any requirements for formal variations to the existing licence, which are provided for under the Environmental (Impact Assessment and Audit) Regulations, 2003.

Road Upgrade – The draft ESIA has been submitted to NEMA for review and approval[1]. Any conditions associated with a Licence should be accommodated and included for in the Project.

Associated Transmission Line – The Environmental Licence for the proposed transmission line has been granted to LTWP as it was envisaged that LTWP would develop the line as part of the overall scheme. As this will now be undertaken by Ketraco, the License and associated obligations should be formally transferred to Ketraco.

Summary of IFC PS Review

There are eight IFC standards which set the benchmark for environmental and social requirements for Bank funded development projects in order to minimise the significant impacts on the environment and on affected communities. The standards apply to the primary project site and related facilities as well as "Associated Facilities". Associated Facilities are defined as those which the main project relies upon for existence, or for successful operation. The transmission line is therefore considered to be an Associated Facility and has been included in this review together with the primary Project (windfarm and external access road upgrade).

The review of the ESIA documentation and the site visit confirms that the Project (and associated facility) is broadly in line with the requirements of the IFC standards. To comply, the findings of the ESIAs will need to be developed such that they can be incorporated into the detailed design, construction and operation of the Project and associated transmission line. The following are the key findings for each of the standards:

PS 1: Social and Environmental Assessment and Management Systems

Social and Environmental Assessment:

Both of the Project components (i.e. windfarm and road upgrade) and associated transmission line have been subject to ESIA; consent has been granted for the windfarm and transmission line, while the approval for the road upgrade was pending at the time of writing this Review. Going forward, it is recommended that the interface with NEMA is managed in order to ensure that the regulatory requirements are fully understood and unexpected risks avoided.

[1] [1] The Road Upgrade ESIA has since been approved and a Licence was issued in January 2011.

The review identified that there are some environmental and social issues that require clarification to ensure appropriate management during the design, construction and operation stages. These issues include:

- Confirmation of sufficient water for construction and operation of the Project components;
- Confirmation of effects associated with re-routing the access road away from communities of Ngurunit, South Horr and Kurungu;
- Clarification of impacts associated with vehicle movements (e.g. severance, community safety, noise and air quality), during construction and operation on the transportation route from Mombasa to the Project site, including the proposed upgrading/ rehabilitation from Laisamis to the windfarm site, lay-down areas and the new internal site access road network; and
- Definition of the overall approach, location and management of any transport staging/ rest/ stop-over areas, the construction camps for workers, as well as permanent office and maintenance facilities and staff accommodation, as appropriate, on both components of the Project and associated transmission line.

Management Programme: At this stage there is no detailed site-specific Social and Environmental Management Programme or Action Plan established which captures all health and safety, social, labour and environmental risks and mitigation measures. To ensure that the recommendations from the ESIAs are effectively implemented in subsequent stages of the project, a LTWP Management Plan should be developed.

Environmental and Social Management Plans (ESMPs): All components of the development should be developed from the existing outline ESMPs presented in the ESIA Reports, prepared by the Contractor responsible for that component of the works taking cognisance of the Employers Requirements such that they are specific to the works, and set out in a manner which can be implemented in the contracts and can be monitored and audited. These should be live 'tools' for the environmental management of the Project and should be subject to review and update as the Project evolves.

It is recommended that Ketraco prepare a separate ESMP for the construction of the transmission line, as per Condition 9 of the NEMA EIA Licence.

Community Engagement: Community engagement has been initiated for the Project through the ESIA process and the development of the LTWP Corporate Social Responsibility Programme (CSRP). LTWP has demonstrated sensitivity towards the need for effective community engagement. The procedures for on-going engagement and consultation (including grievance procedures) with affected communities at the windfarm site and existing road upgrade should be further developed and documented as a priority.

To date, for the transmission line, community engagement has been undertaken by others, namely the wayleave surveyors (42 Geomatics Services Ltd) and the various ESIA consultants commissioned by LTWP. As this component of the development has been handed over to Ketraco, careful management of this community interface change will need to be planned and documented in the Ketraco transmission line Public Consultation and Disclosure Plan (PCDP).

PS 2: Labour and Working Conditions

Labour and potential employment opportunities are of key interest to local communities. It is recommended that a Labour Plan is prepared as part of LTWP and the various Contractors ESMPs. These Plans should confirm the number and nature of the various employment opportunities for each project component,

document the process to demonstrate open and equitable employment procedures, as well as generally state the intended position regarding issues such as working conditions, non-discrimination, child labour etc.

The collective recommendations set out in the ESIA Reports relating to occupational health and safety (OHS) should be brought together in standalone project component specific Occupational Health and Safety Plans prepared by the various Contractors and compliance overseen by LTWP or their designate. The OHS Plan(s) should also include monthly reporting statistics such as identification numbers, number employed, role/ grade, sex, for both permanent and temporary employees as well as all safety incidents including those of a minor nature in addition to Lost Time Accident (LTA) as defined in the Employers Requirements. In addition, specific provisions for the handling of emergency situation; through an Emergency Preparedness and Response Plan (EPRP). It is also recommended that specific Accommodation Plan(s) are developed for all components of the development in order to guide and ensure accommodation conditions meet with requirements and any adverse impact is appropriately managed through monitoring procedures.

PS 3: Pollution Prevention and Abatement

The requirements of PS3 are variously addressed in the ESIAs. Detailed information on the location of project elements for the windfarm and the associated transmission line is limited such as, the road upgrade, laydown and access road network around the site, burrow areas and cement for construction. The sensitive receivers and associated traffic safety, waste, noise, water and air quality impacts during construction and operation need to be better defined in order to prepare focused ESMPs and associated mitigating action plans (e.g. in relation to vehicular movements along the access route as well as from fixed and mobile plant on site).

The specific impacts of the transport staging areas and worker camps, as well as overall impacts of water supply for the worker camps and construction activities for the road and the windfarm site, need to be clarified. Waste Management Plans (WMP) incorporating specific provisions for the management of hazardous wastes should be developed as part of the component specific ESMPs. LTWP will oversee and monitor compliance of all of the various Contractor ESMPs.

Industry specific issues identified in the environmental, health and safety (EHS) guidelines for both wind energy and transmission, such as electromagnetic interference and exposure to electric and magnetic fields (EMF) should be addressed in the design.

PS 4: Community Health, Safety & Security

The Project and associated transmission line are broadly compliant with the requirements of PS4. To manage issues of community safety (including accidents associated with increased vehicle movements, electrocution etc), a Traffic Management Plan (TMP) and an EPRP should be developed as part of the construction and transportation OHS Plans. The detailed design of the arrangements for the worker construction camp provision for water resources should be developed to avoid impacts on soils and groundwater resources including potential community conflicts arising from increased pressure on these limited resources.

PS 5: Land Acquisition and Involuntary Resettlement

The initial review found that the associated transmission line had not been compliant with the principles of PS5 as potential for resettlement had not been adequately addressed. It was recommended that a Resettlement Policy Framework (RPF) be developed to guide potential resettlement issues for the Project (if any were to arise) and specifically the Ketraco transmission line in its capacity as an associated facility.

The RPF has now been developed[2]. It establishes the principles, procedures, entitlements and eligibility criteria; the organisational arrangements; provisions for monitoring and evaluation; the framework for public consultation and participation; as well as the mechanisms for redressing grievances that will be adopted where involuntary land acquisition and resettlement are required.

Currently, no resettlement is required on the Project i.e. at the windfarm site or the route of the proposed road upgrade. Project design is on-going and the RPF ensures that a consistent approach can be applied in the event that the need for land acquisition and resettlement is identified further down the process. Where involuntary land acquisition and resettlement will be required, a Resettlement Action Plan (RAP) should be prepared based on the principles defined in the RPF.

For the associated transmission line, there is an identified need to prepare a RAP as there will be restriction to the use of land that falls within the line's wayleave corridor, as well as loss of structures and other assets (e.g. crops, trees) that are within the wayleave. Work on the wayleaves acquisition is on-going and a gap analysis has been undertaken to assess to what extent the process adopted to date is compatible with IFC and other best practice standards on involuntary land acquisition and resettlement. The analysis found that the process currently being followed is in line with IFC in some areas but it also identifies areas where the process falls short of the standards. The RPF identifies ways to bring the process in line with IFC PS5 and these have been presented to Ketraco. As the transmission line is an associated facility, in line with IFC policy on private company responsibilities where resettlement is Government managed, LTWP will collaborate with Ketraco to the extent permitted by them, to achieve the outcomes that are consistent with the objectives of PS5.

PS 6: Biodiversity Conservation and Sustainable Natural Resource Management

The site visit allowed confirmation of the ESIA findings and the overall conclusion is that the ESIA accords with the requirements of PS6. A one-year programme of bird surveys, recommended in the windfarm ESIA report, has already commenced. It is recommended that the ESMPs should include the requirements to manage the impacts on ecological resources.

PS7: Indigenous Peoples

The Project is broadly compliant with the requirements of PS7. The windfarm site is very sparsely populated (1-2 people km^2). The general area is inhabited by four main ethnic groups: the Turkana, Samburu, Rendille, and El Molo. These groups do see themselves as distinct, in accordance with the principles of the definition of Indigenous Peoples. It is understood that Turkana is the only group that inhabit/ migrate within the windfarm site boundary, though at various times some of the other groups encroach within the LTWP concession area. LTWP has demonstrated a sensitivity to the cultural setting of the area and has progressed the Project in a way that ensures each of the tribal groups are treated in an equitable manner in relation to consultation and management of employment opportunities as well as other potential benefits that the Project may bring. This approach, and documentary evidence of such, should be recorded in the Community Engagement Plan (CEP) and the Labour Plan.

The road upgrade is not anticipated to impinge on the cultural rights of Indigenous Peoples. The ESMPs, any RAP, and the ongoing CSRP for the Project, should continue to be developed with cognisance and sensitivity to rights and issues of the tribal groups.

Issues associated with Indigenous Peoples are not anticipated along the transmission line.

PS 8: Cultural Heritage

The project is compliant with the requirements of PS8. The National Museums of Kenya (NMK) Archaeological Division has completed a survey of the windfarm and indicated no items of concern. No

[2] Lake Turkana Wind Power Project Kenya – Resettlement Policy Framework November 2010.

issues relating to cultural heritage are anticipated on the road upgrade or associated transmission line route.

Conclusion

The Review of documentation and site visit confirms that the Project and associated transmission line are broadly in line with the requirements of the IFC Performance Standards. Whilst there are issues which require resolution, observations on site confirm that from a strategic perspective, the Project benefits from being in a very remote location (with low population density), has no operational emissions and a small physical footprint. Notwithstanding the overall remote location of the Project, from the review of the ESIA Reports and the site visit, there are certain environmental and social issues that do require clarification including:

- Issue of availability of sufficient water for construction and operation of the windfarm and rehabilitation of the existing and access road network to be established around the windfarm site.
- Evaluation of effects associated with vehicle movements and other project activities at the windfarm site (especially with regard to Sirima Village) and mitigation measures identified to be implemented through ESMPs.
- Evaluation of effects on sensitive receptors identified along the proposed road upgrade route taking into account the finalised alignment (including the proposed diversions), wayleaves and any off site work areas and associated activities. Mitigation measures arising should be detailed in a road and access TMP(s) and reported through the ESMPs.
- Better definition of the requirements for accommodation of construction workers (setting out the overall approach, location and management of the construction camps for workers, as appropriate for the Project and associated transmission line). Any recommendations arising should be reported in an Accommodation Plan and impacts arising should be reported though the ESMPs.
- Borrow areas for aggregate, sand and the supply of concrete for construction need to be mapped and an evaluation of effects from the extraction, transportation, safety, potential pollution and nuisance to nearby sensitive receptors needs to be identified and reported in the ESMPs including any recommendation arising for this component. Mitigation measures should be detailed and reported through the ESMPs.

To comply with the requirements of the IFC PS, the findings of the ESIAs will need to be developed such that they can be incorporated into the detailed design, construction and operation of the developments through ESMPs. This should be underpinned by an overarching Environmental and Social Policy Statement that sets out LTWP's objectives and describes key commitments, including compliance with Employers Requirements in respect to environmental, social, health and safety issues, as well as the requirements of applicable Kenyan legislation.

1 Introduction

1.1 General

1.1.1 The proposed Lake Turkana Wind Power Project is situated in the Marsabit district of northwest Kenya, at least 8km east of Lake Turkana and 50km due north of South Horr. The project aims to provide 300MWe of wind energy for the national grid, which equates to around of 20% of the current installed electricity generating capacity of Kenya.

1.1.2 The project proponent is the Lake Turkana Wind Power consortium (LTWP). In 2010, Aldwych International and the Industrial Development Corporation (IDC) joined the existing project equity, KP&P Africa S.A (KP&P), as co-sponsors under a Joint Development Agreement. The project comprises two components: a windfarm and external access road upgrade, collectively the 'Project'. A 400kV transmission line is being developed, in parallel to the Project, by the newly formed State owned power transmission company, Ketraco.

1.1.3 African Development Bank (AfDB), a Lender to the Project, has undertaken its own review of the Project in accordance with AfDB lending procedures.

1.1.4 LTWP has commissioned extensive studies including environmental and social impact assessments (ESIAs) of the windfarm site, approximately 200km of existing road rehabilitation and upgrade, and the proposed 428km transmission line route when it was originally part of the development (prior to Ketraco taking ownership). The National Environment Management Authority (NEMA) granted Environmental Impact Assessment Licences for the development of the windfarm site and the transmission line in July 2009. As at November 2010, a draft ESIA Report for the proposed road rehabilitation and upgrade has been submitted to NEMA for review and formal Approval[3].

1.2 Purpose of this Report

1.2.1 The agreed intention of the windfarm sponsors is that the Project be developed and implemented in accordance with the provisions of the International Finance Corporation (IFC) Performance Standards (PS) on Social and Environmental Sustainability. The LTWP Project would normally be classified as 'Category B' under the IFC Environmental Policy and 'Category 2' under the AfDB's Environmental and Social Assessment Procedures. However, the AfDB ("in the spirit of the Paris Declaration and alignment with the Bank's procedures towards country EIA process") have assigned it Category 1[4] requiring a site specific ESIA study including the preparation of a detailed ESMP.

1.2.2 LTWP has commissioned Scott Wilson consultancy to carry out a gap analysis review (the 'Review') of the available approved environmental and social study reports against the IFC requirements to identify any areas where the provisions currently fall short of the IFC PS, and make recommendations as necessary to guide the implementation of the Project.

1.2.3 A separate consultancy agreement will be let in order to implement any outstanding activities identified by this Review.

[3] The Road Upgrade ESIA has since been approved and a Licence was issued in January 2011.
[4] AfDB's Lake Turkana Wind Power Project ESIA Summary Report (Footnote 2), April 2009.

1.3 Methodology

Scoping of Existing ESIA Reports

1.3.1 The purpose of the initial scoping exercise is to understand and rationalise the Project environmental and social reports produced to date, and from them, define the scope of the Project to be reviewed against the IFC PS. Environmental permits and licenses have also been reviewed to identify any significant issues or constraints. It is not the purpose of the scoping exercise to reassess the original ESIAs, however where the ESIA Reports themselves have identified gaps in the assessment, or where obvious limitations are found, these have been identified for consideration and action.

ESIA Review against IFC Performance Standards

1.3.2 Following the initial scoping exercise, the defined scheme has been reviewed against the IFC PS (see Section 3). A discussion is presented against each of the PS, including the Environmental, Health and Safety (EHS) Guidelines. The Performance Standards are:

- PS 1: Social and Environmental Assessment and Management Systems;
- PS 2: Labour and Working Conditions;
- PS 3: Pollution Prevention and Abatement;
- PS 4: Community Health, Safety and Security;
- PS 5: Land Acquisition and Involuntary Resettlement;
- PS 6: Biodiversity Conservation and Sustainable Natural Resource Management;
- PS 7: Indigenous Peoples; and
- PS 8: Cultural Heritage.

IFC Performance Standards Review (2011)

1.3.3 The IFC Performance Standards (2006) are currently under review. This process commenced in September 2009 and (as at February 2011) is in its final phase (Phase 3) which will draw to a close around June 2011. For the Review of this Project and associated transmission line, cognisance has been taken of the intention behind the proposed amendments where this aids the overall interpretation of the existing PS. Below is an overview of the key changes currently proposed[5]:

1.3.4 **Climate Change.** The focus will be broadened to include efficient use of resources (energy and water), to reduce green house gas emissions and improve energy efficiency. The reporting threshold will be reduced from 100,000 tons to 25,000 tons CO_2-equivalent, per annum.

1.3.5 **Ecosystems and Biodiversity.** There will be clarification of PS in situations of possible significant degradation of natural habitats. More explicit requirements regarding ecosystem services, including: (i) ensuring that use of natural resources does not have significant adverse impacts upon others, and (ii) protecting the regulating services that the environment provides to communities e.g. reduce landslides, floods, and other natural hazards.

[5] As the review is on-going, this information is relevant as at January 2011 and it is recommended that the client takes cognisance of the emerging standards and applies to project as necessary for example through the project ESMP.

1.3.6 **Human Rights.** Anticipated changes confirm IFC's recognition of the private sector's responsibility to respect human rights. This will include information on (voluntary) human rights impact assessments, as well as improved access to grievance mechanisms for affected communities.

1.3.7 **Labour and Supply Chains.** The scope relating to labour and supply chains is broadened to include non-employee workers contracted directly by a client, and also to ensure that working conditions for migrant and non-migrant workers are comparable. Supply chain provisions related to significant safety issues as well as worker accommodation requirements are also included for.

1.3.8 **Stakeholder Engagement.** Guidance is strengthened for client stakeholder engagement, especially with Affected Communities, and gaining broad community support (BCS). IFC also proposes that clients demonstrate that they have obtained the free, prior and informed consent (FPIC) for Indigenous Peoples under certain circumstances. IFC propose to carry out due diligence of stakeholder engagement.

In-country Meetings and Site Visit

1.3.9 The Review team visited Kenya between 26 July and 5 August 2010. The purpose of the visit was to meet the authors of the relevant ESIA Reports in order to discuss the findings, and to visit the site to ground-truth the assessments carried out. A number of meetings were held with LTWP, as well as with the following local teams who have contributed to the project:

1. Meeting with Professor Muthuri, author of the ESIA Report for the windfarm;
2. Meeting with Professor Njoroge, author of the ESIAs for the road upgrade and the associated transmission line;
3. Meeting with 42 Geomatics Services Ltd and its subcontractors who have been commissioned to develop the transmission line route alignment and acquire the wayleaves; and
4. Meeting with senior Ketraco representatives.

1.3.10 The site visit comprised a drive from Nairobi, via the northern part of the transportation route from Mombasa, and along the length of the proposed road upgrade (from Laisamis junction to the windfarm site), two days walkover survey at the windfarm site as well as visual survey (via helicopter) of the entire alignment of the associated transmission line from the proposed switchyard at Suswa to the windfarm site.

1.3.11 Project design information and mapping was limited in the ESIA Reports. To aid appreciation of the site and its context, maps showing the windfarm concession area, the proposed transportation route and the associated transmission line route as well as a selection of photographs are shown in Appendices 1 and 2.

1.4 Project Documents Reviewed

1.4.1 A number of environmental and social project documents have been provided, which form the basis of this Review. These are listed in Table 1 below. Each document has been given an arbitrary reference to simplify discussion.

1.4.2 In summary, these comprise:

- 2x NEMA Licenses and 2x Conditions for Approval for the windfarm site and the transmission line respectively (References SW-0001 to SW-0004);
- The As-Submitted EIA Reports for the Windfarm Site and the Transmission Line, both dated 2008 (References SW-0005 and SW-0006);
- A separate socio-economic study of both the windfarm site and transmission line, (completed after the As-submitted EIA Reports) dated March 2009 (Reference SW-0007);
- An ESIA for the Windfarm Project including an associated Summary Report dated 2009. (References SW-0008 and SW-0009). These were prepared as an update to the As-Submitted 2008 EIA Report for the Windfarm (Reference SW-0005) for AfDB;
- A Route Clearance Evaluation Report for the Transmission Line dated 2009, (Reference SW-0010);
- A Due Diligence Report of the Project prepared by Grontmij and CarlBro for AfDB and LTWP dated February 2010, (Reference SW-0011), which primarily examines the technical aspects of the project; and
- The Draft ESIA Report for the road upgrade works between Laisamis and South Horr, and South Horr to Loiyangalani, dated June 2010 (Reference SW – 0012).

1.4.3 A number of other project design reports have been prepared and were provided to the Review Team for reference. Where relevant these have been cited in the appropriate sections of the Review.

Table 1: Key Environmental and Social Project Documents Reviewed

Scott Wilson Ref	Document Title
SW-0001	National Environmental Management Authority: **Conditions for Approval** of Environmental Impact Assessment Project Report for the Proposed Lake Turkana Wind Power Project in Laisamis District. 19 May 2009. **Ref NEMA /Pr/5/2/5964**
SW-0002	National Environmental Management Authority: **Conditions for Approval** of Environmental Impact Assessment Project Report for the Proposed 400kV Power Transmission Line from Loiyangalani to Suswa. 19 May 2009. Ref NEMA /**Pr/5/2/5965**
SW-0003	National Environmental Management Authority. **Environmental Impact Assessment License**. "Construction of a Power Plant for the Generation of Electricity from Wind Powered Turbines", Application Reference Pr/5964. **Registration No. 0003866 July 2009**
SW-0004	National Environmental Management Authority. **Environmental Impact Assessment License**. "Construction of 400km, 400kV Transmission Line from Loiyangalani to Suswa". Application Reference Pr/5965. **Registration No. 0003865 July 2009**
SW-0005	Lake Turkana Wind Power Project - Environmental Impact Assessment Study Report. May 2008
SW-0006	EIA Project Report - Proposed 400kV Power Transmission Line from Loiyangalani to Suswa Transmission Line EIA Report - July 2008
SW-0007	Social-Economic Study Report for the Proposed Wind Power Farm at Loiyangalani and the 400kV Power Transmission Line from Loiyangalani to Suswa. March 2009
SW-0008	Environmental And Social Impact Assessment Summary. Lake Turkana Wind Power Project Kenya Project Number P-Ke-Fz0-001 24 April 2009 (AfDB)
SW-0009	Lake Turkana Wind Power Project - Environmental And Social Impact Assessment Study Report. July 2009 **{Update Of Doc SW-0005}**
SW-0010	Lake Turkana Wind Power Project 400kV Transmission Line Route Clearance Evaluation Report - Ezekiel Kemboi 42 Geomatics Ltd & Ekipi Enterprises. December 2009
SW-0011	Due Diligence on the Wind Power Project at the Lake Turkana, Kenya for the African Development Bank And Lake Turkana Wind Power Limited. Draft Project Appraisal Report: Grontmij Carl Bro. February 2010 Project 80.4914.01
SW-0012	Draft Environmental And Social Impact Assessment (ESIA) for the Proposed Strengthening of Laisamis - South Horr, (D371) and South Horr - Loiyangalani (C77) Road. (Volume IV) June 2010

2 Project Scoping

2.1 Project Components

2.1.1 The Project comprises the following two elements: windfarm and external access road upgrade. The transmission line is considered an associated facility of the Project.

Windfarm

2.1.2 The windfarm includes three hundred and sixty five (365) V52 turbines, with a hub height of 44m. The turbines are connected via an above-ground medium voltage (33kV) electricity collector grid system and a high voltage (400/33kV) switchyard which will connect to the proposed 400kV transmission line. Each turbine has a capacity of 0.850MWe giving a total combined installed capacity of 310MWe.

2.1.3 LTWP have rights to a concession area covering a total of 150,000 acres. The windfarm will be positioned in a site comprising 24,000 acres (approximately 100km^2) within the overall concession area. The site location is shown in Appendix 1.

2.1.4 Within the windfarm site, the turbines will be positioned approximately 10km to the east of Lake Turkana. There are no maps or plans showing the specific location or configuration of the turbines in the Project reports. The ultimate location of the individual turbines within the site area is subject to finalisation, on the basis of the wind data currently being collected from a series of ten data loggers positioned across the site.

Road Upgrade

2.1.5 The windfarm site is located approximately 1,200km from the seaport of Mombasa, from where the equipment will be transported to site by road. The proposed route is shown in Appendix 1. The majority of this road already exists. However, a distance of approximately 196km of existing rural road between Laisamis – South Horr (D371) and South Horr – Loiyangalani Road (C77) to the windfarm site does require upgrade works including realignment, levelling and grading, construction of culverts and general repairs. The road will be 6m wide with a 5m wayleave to each side. The detailed alignment of the road (including the extent of the necessary wayleaves) has yet to be determined. Following consultation with stakeholders and their concerns regarding potential negative transport impacts, two route diversions are currently being progressed in order to avoid existing settlements at Ngurunit and at South Horr (an aerial photo of South Horr is shown in Appendix 2).

Transmission Line

2.1.6 A 400kV transmission line will extend from the windfarm site, due-south to Suswa, via Baragoi, Maralal, Rumuruti, Nyahururu, Gilgil and Naivasha, a distance of 428km (the proposed route alignment and selected site photographs are shown in Appendices 1 & 2). The wayleave corridor is 60m wide. The associated transmission line will connect to the switchyard on site and a terminal switchyard at Suswa. The development of the transmission line was originally part of the overall LTWP Project along with the windfarm and road upgrade, and the ESIA Reports and route surveys documents referenced in this Review were commissioned by LTWP. However this element of the project will now be progressed by Ketraco. The works for the transmission line will primarily be funded by the Spanish Government with a portion funded by the Kenyan Government.

2.2 Current Status of Approvals & Study Reports

2.2.1 The development of the windfarm and associated transmission line officially received environmental Approval at a national level from NEMA in July 2009 in the form of two Environmental Licenses, (References SW-0003 & SW-0004 respectively). Each License is granted subject to Conditions. The Licenses are shown in Appendix 3.

2.2.2 The Licenses and Conditions were granted on the basis of the EIA Reports submitted to NEMA for Approval. However, the actual Licenses do not include specific reference to any particular EIA Report submission, and so the Approvals are not subject to any specific scheme design.

2.2.3 The EIA Reports formally approved by NEMA are the Lake Turkana Wind Power Project EIA Study Report, May 2008, (Reference SW-0005) and the EIA Project Report - Proposed 400kV Power Transmission Line from Loiyangalani to Suswa Transmission Line EIA Report, July 2008 (Reference SW-0006).

2.2.4 The 2008 EIA report for the windfarm (Reference SW-0005) is based upon a scheme of 100 turbines, rather than the 365 currently proposed. The EIA Report was subsequently revised in July 2009 and an accompanying summary report was also prepared (References SW-0008 & SW-0009) to satisfy the requirements of the AfDB. This revised report was updated in a number of areas, including: the increased number of wind turbines, a discussion of the carbon credits and the Clean Development Mechanism (CDM), as well as expanded discussions on consultation and proposed mitigation. The updated report has not been submitted to NEMA.

2.2.5 The 2008 EIA report for the transmission line (Reference SW-0006) submitted to NEMA included assessment of a broad alignment, without detailed information of the transmission line alignment relative to the surrounding environment. The License for the transmission line has been granted to LTWP as the original proponents. This, and the responsibility for pursuing the Conditions of the Licence, will need to be transferred to Ketraco.

2.2.6 As at November 2010, the submitted draft ESIA for the road upgrade works (SW-0012) is awaiting NEMA approval. Comments may be issued by NEMA on the draft Report which will need to be managed. Any Conditions associated with a License should be accommodated and included for in the wind farm project.

2.2.7 SW-0009 also includes a discussion of activities and potential issues in relation to certain aspects of the road upgrade. This Review makes reference to issues associated with the access road where identified as relevant in the SW-0009 & SW-0012 Reports as well those arising from on site observations.

2.2.8 The remaining documents shown in Table 1, including i) the March 2009 Socio-Economic Study Report (Reference SW-0007); ii) the December 2009 Transmission Line Route Clearance Evaluation Report (Reference SW-0010); and iii) the February 2010 Due Diligence Report (Reference SW-00011) have been prepared as part of the scheme development. These reports in many different sections include evaluation of potential effects as well as recommendations for environmental management. As design reports, they have not been submitted for formal approval.

Scheme Adopted for this Review against the IFC Performance Standards

2.2.9 As noted above, rather than provide Approval of a specific scheme design, the Conditions associated with the Environmental Licenses are generic in nature and Approval is granted on

the basis that all relevant sub-approvals (e.g. from other consultees and local authorities) are obtained, that all relevant environmental laws and by-laws are adhered to and that the design, construction and operation avoids significant impact upon sensitive receivers.

2.2.10 On that basis, all documents presented in Table 1, have some relevance to the Approval. However, for the purposes of the Review, it is assumed that the principal documents are:

- The (updated) July 2009 ESIA Report for the Windfarm (Reference SW-0009);
- The Draft Environmental And Social Impact Assessment (ESIA) for the Proposed Strengthening of Laisamis - South Horr (D371) and South Horr - Loiyangalani (C77) Road (Reference SW-0012); and
- The 2008 EIA report for the Transmission Line (Reference SW-0006) submitted to NEMA.

2.2.11 Whilst the SW-0009 Report is not the formally approved Report, it does represent the most up to date document and presents an enhanced assessment relative to the report submitted for Approval (SW-0005). It also accommodates the comments raised by AfDB in their review of the Project (including associated facility) documentation. From a practical perspective, it presents the most suitable document from which to develop environmental and social management plans. Other documents referenced in this Review are assumed to support the primary reports.

3 IFC Performance Standards Review

3.1 Introduction

3.1.1 The IFC first issued its "Environment and Social Review Procedures" in 2006. This framework defined the roles and responsibilities for IFC and its clients, requiring clients to meet eight applicable outcome-based IFC Performance Standards (although LTWP is not an IFC client, its funding partners have adopted the IFC environmental and social standards for this Project). IFC also prepared Guidance Notes to support the eight Performance Standards, and in cooperation with the World Bank revised the existing EHS Guidelines in 2008. These documents comprise the building blocks of IFC's present safeguard policy framework. They underpin the Equator Principles, a project finance benchmark for assessing and managing social and environmental risks for development projects, and have rapidly become the environmental and social standards independently adopted by many international funding institutions and Banks. The current IFC Performance Standards are set out in:

- International Finance Corporation's Performance Standards on Social and Environmental Standards (30 April 2006).
- International Finance Corporation's Guidance Notes: Performance Standards on Social and Environmental Standards (31 July 2007).

3.1.2 On the basis of the review of the ESIA Reports and the site visit, all eight Performance Standards (listed in Section 1.3.2) are considered to be the Project Standards.

3.1.3 Relevant IFC EHS Guidelines include:

- EHS General Guidelines (April 2007);
- EHS Guidelines for Wind Energy (April 2007); and
- EHS Guidelines for Electric Power Transmission and Distribution (April 2007).

3.2 PS 1: Assessment and Management of Social & Environmental Risks and Impacts

3.2.1 PS 1 sets out the overall framework for environmental management during the different phases of a project. It sets out the following requirements including:

- Social and Environmental Management System;
- Management Programme;
- Organisational Capacity;
- Training;
- Community Engagement; and
- Monitoring and Reporting.

Application of the IFC Performance Standards to the Different Project Components & Project Phases

3.2.2 It is necessary to define the scope of the Project's area of influence to determine how widely the IFC Performance Standards are to be applied. In principle, given that LTWP has adopted IFC PS as the Project Standards and AfDB have concurred with this assertion, this extends to the primary Project site and related facilities as well as "Associated Facilities", which are defined as those which are not funded as part of the Project (funding may be provided separately by the client or by third parties including the government), "*but whose viability and existence depend exclusively on the project and whose goods or services are essential for the successful operation of the project"*. The proposed amendments to the current version of the IFC Performance Standards (which have not been ratified, but are currently under review as at February 2011), amend this interpretation of Associated Facilities to "*… facilities that are not funded as part of the project and that would not have been constructed or expanded if the project did not exist and without which the project would not be viable".*

3.2.3 As discussed, the windfarm and access roads are considered to be part of the primary project site and related facilities, collectively the Project. As it will be Ketraco who will construct and take ownership of the transmission line, and funding will not come from LTWP, it is considered to be an "Associated Facility" of the Project in accordance with PS1 S5 (ii).

3.2.4 Therefore, for the purposes of this review, the IFC Performance Standards are assumed to apply to both Project components and the associated transmission line.

3.2.5 The manner and degree to which the IFC Performance Standards are adopted for the transmission line will be dependent upon Ketraco, and the sponsors. Financing of the transmission line has not been concluded at the time of writing. Discussions with Ketraco during the site visit indicated that so far, no specific environmental or social standards (over and above compliance with national standards) have been prescribed as part of the conditions of the investment from the Spanish government.

3.2.6 Whilst LTWP is no longer sponsoring the transmission line, because of its status as an Associated Facility, the Project Lenders will require that it is developed and implemented in accordance with the provisions of the IFC Performance Standards. As it was the original intention that LTWP develop the transmission line, LTWP commissioned the ESIA Report (including the outline ESMP). Due to the contractual importance of the transmission line to the completion of the overall project, a Task Force has been established to oversee the interface between contracts, which includes LTWP representation.

3.2.7 The ESIA reports prepared acknowledge that the ESIAs are pertinent to construction, operation and decommissioning phases. Details of decommissioning are not addressed in the ESIAs and therefore not commented upon within this Review. At this stage, we would not anticipate any significant issues associated with decommissioning.

Review of Provisions

Social and Environmental Assessment

3.2.8 EIA Reports have been submitted and approved by NEMA for the windfarm site and the transmission route. The draft ESIA for the road upgrade works has been submitted to NEMA and is currently being considered.

3.2.9 All three assessments are qualitative in nature, and are carried out to varying degrees of detail according to the information available; none of the ESIAs present plans or drawings of the proposed works elements.

3.2.10 The Approved EIA for the windfarm is based on a design of 100 turbines which has since been superseded by a revised design of 365 turbines. An updated report (Reference SW-0009) has been prepared in response to a review by AfDB to reflect this design change.

3.2.11 The draft ESIA for the road upgrade (SW-0012) identifies key construction issues as impacts on water resources, impacts from materials extraction from borrow areas, and noise and disturbance from vehicle and plant movements. During operations, the effects of increased traffic movements are also identified as an impact, but not discussed in detail. Overall, from observations during the site visit, it is apparent that the road margins along the length of the alignment are very sparsely populated. However, to enable effective focused environmental management under the ESMP, further clarification and quantification is necessary on the degree and extent of impacts in relation to these issues. (See Appendix 2 for photos of existing road conditions). Since the submission of the ESIA, it has been proposed that the road alignment be re-routed away from the communities at Ngurunit, South Horr and Kurungu and further ESIA work covering the proposed diversions has been proposed by LTWP.

3.2.12 The EIA for the associated transmission line (SW-0006) has limited detail; it is stated in the Report that the wayleaves were walked by the assessment team (during which discussions were held with the locals and alternatives considered), but the details are not presented in the EIA Report. Alternative line routing was undertaken by 42 Geomatics Services Ltd in May 2008 and a presentation provided to LTWP. The conclusion from the alternative survey was the route submitted for NEMA approval. The process for the application for wayleaves is currently ongoing, the responsibility of which has transferred from LTWP to Ketraco. At the time of writing this report, the transfer of responsibility for the wayleaves and subsequent vegetation clearance had yet to be formalised.

3.2.13 This Review identified some issues related to the windfarm and the access road, which were either only broadly discussed in the EIA Reports, or which are subject to change. These issues require clarification and evaluation as the design develops in order to ensure that appropriate management provisions can be developed and put in place. These issues are discussed further in subsequent sections of this Review, and include:

- Sustainable supply of water during the construction of the access road and for both construction and operation at the windfarm site;
- Effects on avifauna and related ecological resources at the windfarm site (and associated transmission line);
- Confirmation of effects associated with re-routing the access road away from communities of South Horr and Kurungu, and realigning the road along the abandoned D371 road thereby avoiding the community of Ngurunit,
- Confirmation of the impacts associated with vehicle movements (e.g. severance, community safety, noise and air quality) during construction and operation on the access roads and windfarm site; and
- Overall approach, location and management of the transport staging areas, construction camps for workers, as well as permanent office and maintenance facilities and staff accommodation as appropriate on both components of the Project (and associated transmission line).

Management Programme (including organisational capacity and training)

3.2.14 PS1 requires the client to establish management programs which will describe mitigation and performance improvement measures and actions that address the identified social and environmental risks and impacts of the project. Management programs will establish environmental and social Action Plans. At this stage there is no detailed site-specific Social and Environmental Management Programme or Action Plan established which captures all health and safety, social, labour and environmental risks and mitigation measures identified as a result of the Project.

3.2.15 The overall structure for environmental management of the Project should be established. This should include the appointment of an Environmental Manager, as well as designated roles and responsibilities of other staff, such as Community Liaison staff and the Contractors own Environmental management teams. This should be underpinned by an overarching Environmental and Social Policy Statement that sets out LTWP's objectives for the Project and describes key commitments, including compliance with the Project Standards/Employers Requirements as well as the requirements of applicable Kenyan legislation and the inter relationships between the three development components and the various sub-contracts.

3.2.16 The ESIA for the windfarm (Reference SW-0009) includes a well-structured, outline ESMP, including a description of the anticipated management structure and cost estimates. The ESIAs for the road upgrade and associated transmission line (SW-0012 & SW-0006) also include outline ESMPs (with cost estimates) for the construction phase.

3.2.17 The requirements of the outline ESMPs presented in the ESIA Reports need to be developed to be specific to the works and set out in a manner which can be implemented in the Contracts. Separate plans should be developed for the construction and operation stages.

3.2.18 It is recommended that a separate ESMP is developed for the construction of the associated transmission line, by Ketraco. It is understood that Ketraco has an internal team of environmental specialists who would implement / oversee the environmental management of the transmission line. The Environmental Manger for the Project should have an oversight/ reporting role to Lenders of the Project in respect to the status of the implementation of the ESMP for the transmission line.

3.2.19 Training in relation to occupational health and safety (OHS) will be necessary for all elements of the Project, in construction and operation. This is identified as a necessary requirement in the EIA for the windfarm and road upgrade, but not mentioned in the EIA for the associated transmission line.

Community Engagement

3.2.20 Stakeholder consultation exercises have been carried out for all three components as part of the EIA process. The consultees were provided with information on the purpose and nature of the proposed projects. The key issues raised have been identified in the EIA Reports. Measures taken to ensure representative views from all elements of affected communities and stakeholders were not documented in the ESIAs.

3.2.21 Typically consultees seem to welcome the Project and associated transmission line, in principal, subject to careful management of key issues. Key themes raised by consultees, include:

- A request for the allocation of jobs in favour of the communities locally affected;

- An anticipation of general benefits in socio-economic terms, arising from the road upgrade opening up the area;
- A concern for "cultural contamination" and an increase in sexually transmitted infections (STIs) arising from potential influx of people from other areas/ tribes; and
- A concern for potential overuse of scarce resources such as water and firewood.

3.2.22 The Environmental Manager will be responsible for ongoing engagement and reporting to affected communities. The ESMP Chapter in the windfarm ESIA has identified (and budgeted) anticipated meetings and consultation requirements during the construction process for the windfarm. This role should extend to the access road also.

3.2.23 Because there are site based project activities being carried out in advance of the formal construction works (e.g. drilling works for water supply testing etc), it will be necessary to ensure that the existing provisions for community engagement are continued and conducted in a manner consistent with IFC standards including with regard to disclosure. It is also important that ongoing community engagement is documented in a manner which can be audited. Stakeholder mapping (including any new stakeholders arising from the proposed access road re-route), should be confirmed as part of a Community Engagement Plan (CEP).

3.2.24 Ongoing provisions for community engagement during construction of the associated transmission line need to be determined by Ketraco. However, the LTWP Environmental Manager should maintain an overview of future transmission line consultations, to ensure consistency with LTWP's own commitments.

3.2.25 In May 2009, LTWP initiated studies as part of a proposed Corporate Social Responsibility Programme (CSRP) in the Project area[6].

3.2.26 The CSRP is a mechanism by which LTWP aims to reinvest part of their earnings back into the local communities. The amount of funding will be a percentage of profits. This is currently anticipated to be 150,000 Euros per annum, for the duration of the Power Purchase Agreement, which is 20 years. The CSRP is based on local needs as defined through socio-economic studies of the local communities, as well as strategic governmental plans for the area. It has identified areas for investment in five sectors, including social services, infrastructure, livelihoods, environmental conservation and security. Immediate priorities have been identified as:

- Education: Setting up schools and vocational training centres;
- Health: Setting up medical clinics; and
- Water: Distribution of potable water for humans and drinking water for livestock.

3.2.27 The October 2009 CSRP Business Plan anticipates investment in CSR projects following the first year of profits, which (on the programme envisaged at that time) would equate to CSRP commencing in 2013 following first profits in 2012. However, the draft business plan does also recognise the need for "quick wins" as the Project commences and it states that LTWP will provide CSRP seed money for activities in 2011 (i.e. during construction). In addition to the recommendations for specific areas for community projects, the Business Plan also includes recommendations for a management structure, implementation schedule, costs and financial planning as well as a review of the legal structure for the programme; in this regard it is anticipated that a Foundation will be established by LTWP to oversee CSR projects.

[6] LTWP (2009) Corporate Social Responsibility Programme Business Plan 2013-2017. October 2009

3.2.28 Proposals for ongoing consultation for the CSR projects should be brought together in the CEP as part of the Project ESMP.

Monitoring & Reporting

3.2.29 Both Environmental Licenses (References SW-0001 and SW-0002) are conditioned to include a requirement for an annual Environmental Audit Report submitted to NEMA as well as record keeping of licenses/approval and environmental monitoring data on site, for inspection by NEMA.

3.2.30 All three ESIAs identify a broad need for monitoring during construction, although details are variable. The ESIA for the windfarm presents more detail in terms of the focus areas and overall anticipated outcomes. Monitoring Plans will need to be developed for construction and operation on the basis of detailed designs / work procedures and site plans, taking in account sensitive receivers. Key areas for focus include the impact monitoring at local communities affected by the various development components and ensuring that any formal monitoring required by NEMA is undertaken and the interface with NEMA managed to minimise Project risks.

3.2.31 The ESIA for the windfarm recommended one year of baseline surveys of bird movements, during the first year of operation, to confirm predicted impacts on avifauna. Surveys commenced in October 2010.

Conclusions & Recommendations

3.2.32 The windfarm and the road upgrade will be developed by LTWP and implemented through a separate construction contract following a competitive tendering process. The transmission line route development was undertaken by LTWP and implemented by Ketraco; it is considered to be an 'Associated Facility' and as such is subject to the provisions of the IFC Performance Standards. However, final design and implementation of the transmission line is not within the control of LTWP. The interface between LTWP and Ketraco including the respective responsibilities and the mechanism for the management of recommendations should be defined and agreed between LTWP and Ketraco.

3.2.33 Both the Project components and associated transmission line have been subject to ESIA. Environmental Licenses have been granted for the windfarm and the transmission line. As at November 2010, formal approval of the ESIA for the road upgrade (and any associated conditions) is outstanding.

3.2.34 From a regulatory perspective, discussions should be held with NEMA to manage any risks associated with the design changes, such as the increase in the number of turbines at the windfarm as well as the proposed re-alignment of the access road to avoid South Horr, Kurungu and Ngurunit, and to ensure that any formal monitoring required by NEMA is undertaken[7].

3.2.35 From the review of the ESIA Reports and the site visit, there are certain environmental and social issues that require clarification such that measures can be included within the ESMP(s) to ensure appropriate management during the design and construction. These are discussed in more detail in relation to the relevant Performance Standards in the following Sections 3.3 to 3.9, of this Review and include:

[7] The Road Upgrade ESIA has since been approved and a Licence was issued in January 2011.

Windfarm

- Impacts associated with vehicle movements (e.g. severance, community safety, noise and air quality) during construction and operation of the windfarm.
- Extraction and supply of water during the construction and operation at the windfarm site.
- Overall approach, location and management of the construction camps for workers, as well as permanent office and maintenance facilities and staff accommodation, as appropriate, as well as the road network around the site, burrow areas and transportation of cement etc for construction.
- Identification of any poor or vulnerable Project affected stakeholders such as orphans, single parent families, the elderly, infirm or disabled among those likely to be displaced by the Project.

Road Upgrade

- Confirmation of effects associated with re-routing the access road away from communities of South Horr, Kurungu and Ngurunit.
- Extraction and supply of water during the construction of the access road.
- Impacts associated with vehicle movements (e.g. severance, community safety, noise and air quality) during construction and operation on the access road.
- Overall approach, location and management of the transportation staging areas, maintenance facilities and staff accommodation, as appropriate, with regards to the rehabilitation of the existing road upgrade lay down and access road network around the site, burrow areas and transportation of cement etc for construction.
- Identification of any poor or vulnerable project affected stakeholders such as orphans, single parent families, the elderly, infirm or disabled among those likely to be displaced or otherwise significantly impacted by the Project.

Associated Transmission line

- Overall approach, location and management of the transportation staging areas, maintenance facilities and staff accommodation, as appropriate, with regards to the construction of the transmission line.
- Identification of any poor or vulnerable project affected stakeholders such as orphans, single parent families, the elderly, infirm or disabled among those likely to be displaced by the development.

Project Action Plan and ESMPs

3.2.36 A Project Action Plan should be developed to provide a mechanism to ensure that the recommendations from the ESIAs are effectively implemented in the detailed design, construction, operation and (ultimately) the decommissioning of the Project.

Windfarm and Road Upgrade

3.2.37 Under the Project Action Plan, the ESMPs for both components of the Project should be developed from the existing outline ESMPs presented in the ESIA Reports including the requirements stipulated in the Employers Requirements and the gaps presented in this Review,

such that they are specific to each component of the works and set out in a manner which form obligations within the various contracts and can be monitored and audited by LTWP.

3.2.38 The ESMPs should be developed taking into account the detailed requirements of the works (including any additional investigations recommended in this Review); the other supporting documents including issues raised during public consultation; the provisions of the relevant IFC EHS Guidelines, including the Employers and Lender Requirements; and the Conditions set out in the Environmental Licenses.

3.2.39 The consolidated ESMPs should be live 'tools' for the environmental management of the Project and should be subject to review and update as the Project evolves. The ESMPs should include specific sub-plans necessary to fulfil the requirements of Performance Standards 2 to 8 (as will be discussed in Sections 3.3 to 3.9) as well as any national requirements of the Government of Kenya.

3.2.40 The ESMPs can be developed in various ways. Either as a single overarching policy statement, setting the overriding objectives and obligations such that the principal contractors can develop detailed ESMPs which accord with the Project policy statement. Alternatively, a single detailed ESMP can be developed for both the access road upgrade and the windfarm, which includes relevant details for the Contractors to follow. The specific approach is dependent upon LTWPs preferred overall structure of the contracts.

Associated Transmission line

3.2.41 It is recommended that a separate ESMP is developed for the construction of the transmission line by Ketraco, as per Condition 9 of the NEMA EIA Licence for the development. Plans should incorporate construction and operational stages of the project.

Community Engagement

Windfarm and Road Upgrade

3.2.42 The arrangements for community engagement have been initiated for the Project through the CSRP.

3.2.43 To date, LTWP has demonstrated a high level of sensitivity to the need for effective community engagement. The ongoing plans for stakeholder engagement, for the windfarm site and access road as well as grievance procedures should be developed, reported and implemented as part of a CEP, as a matter of priority. It is recommended that LTWP engage an independent third party review of the process and procedures for stakeholder engagement (including grievance redress) is carried out to validate its robustness and support future due diligence by Lenders.

3.2.44 As it is proposed that the CSRP will be implemented once operations commence, it is recommended that communication of the provisions of the CSRP (and management of expectations among affected communities) is addressed in the CEP / Public Consultation and Disclosure Plan (PCDP).

Associated Transmission Line

3.2.45 Ketraco is responsible for managing community engagement relating to the transmission line. However, LTWP will maintain an interface with Ketraco, to the extent permitted by Ketraco, to ensure that community engagement activities are in line with PS1 requirements.

3.3 PS 2: Labour and Working Conditions

3.3.1 PS2 is concerned with the equitable employment and management of labour and ensuring that suitable provisions are in place for their well-being.

3.3.2 PS2 addresses the following aspects of labour and working conditions: (i) human resources policy, (ii) working relationships, (iii) working conditions and terms of employment, (iv) workers' organisations, (v) non-discrimination and equal opportunities, (vi) child labour, (vii) forced labour, (vii) retrenchment, (viii) grievance mechanism, (ix) occupational health and safety, (x) non-employee workers, (xi) supply chain.

Review of Provisions

3.3.3 The ESIAs do not specifically address the detailed requirements of this Performance Standard in regards to the terms and conditions of directly employed staff or employees in the supply chain. This will require further attention to demonstrate compliance adequately and ensure that there are no potential reputational risks to any of the project partners (e.g. issues such as sex trade labour in relation to the creation of construction camps).

3.3.4 The ESIA Reports identify that the Project, and associated transmission line, will provide a range of employment opportunities for the road construction; windfarm construction (limited during operations); and transmission line (construction and maintenance). Various estimates of employment opportunities are cited in the ESIA Reports. More detailed calculations of the anticipated number and type of employment opportunities need to be developed as the designs for the development components progress and reported on during implementation for monitoring purposes.

3.3.5 For the road upgrade, anticipated unskilled and semi-skilled opportunities (such as drivers, masons, carpenters, technicians, gangers, loaders, security etc) are estimated at around 400 people.

3.3.6 The ESIA for the windfarm cites that the number of workers range from 600 during the peak construction phase to an average of 300 workers under normal construction situation and 150 workers during commissioning phase, these numbers are not disaggregated.

3.3.7 At the windfarm it is anticipated that 48 permanent employment opportunities will be available, primarily for skilled staff, including engineers, IT professionals and mechanics (Reference SW-0011). In addition LTWP envisage that, employment opportunities will exist for managers, finance/ accountancy, environmental and safety, administration, cooks, cleaners, drivers, security and labourers.

3.3.8 For the associated transmission line, unskilled opportunities will arise during construction for labourers carrying out wayleave clearance. Semi-skilled and skilled workers will be involved in tower construction and stringing. Ref SW-0010 estimates that route clearance for the transmission line will require around 150 people comprising 50 operators and 100 labourers.

3.3.9 The public consultation exercises for all Project (and associated transmission line) identified that employment opportunities are a major anticipated positive benefit of the developments by local communities. Consultees also cite concerns over the potential influx of migrant workers and the associated effects of camps for construction workers.

3.3.10 From the site visit and discussions with LTWP, it is apparent that LTWP is sensitive to the management of local expectations with regard to employment at the windfarm site. The windfarm site is a remote and impoverished area on the margins of four tribal groups. The area

itself has a very low population density, but because of its location there is the potential for sporadic conflict. LTWP have taken steps to ensure that all labour recruitment is not seen to favour any one tribal group and measures have been taken to meet with local communities and understand the skills pool in the area potentially available for employment. LTWP propose to recruit for the windfarm locally as far as practicable using a locally based person trusted by all tribal groups and already engaged with local development NGOs.

3.3.11 Permanent direct employment opportunities for locals during operation of the windfarm are realistically anticipated to be limited, and there are likely to be a number of expatriate windfarm engineering staff at the windfarm. It is LTWP's stated intention to institute a capacity building process of localisation for windfarm operations, over a period of years.

3.3.12 To manage interface between workers from outside the area and the local communities, visiting construction (and subsequent operational) staff at the windfarm site will be accommodated in construction camps, purpose built by the various Contractors. A draft Security Plan has been developed by LTWP to monitor and manage the security situation on the project site.

3.3.13 The ESIAs for the access route and associated transmission line recommend recruitment of local unskilled labour as an offset to the social impacts associated with disturbance from construction works, although details of plans for employment from these components are not documented, these are likely to be carried out by the relevant Contractors.

3.3.14 All ESIAs include general recommendations for OHS, and cite the national standards and requirements. Industry-specific risks of the windfarm and the transmission line include those hazards associated with working in the vicinity of high voltage equipment. The windfarm ESIA specifically cites the IFC Performance Standards, and the need to develop plans in accordance with relevant EHS Guidelines. The ESIA for the transmission line includes a Health, Safety and Accident Prevention Plan (Chapter 7). Other supporting documents include various references and recommendations with regard to the consideration of OHS.

Conclusions & Recommendations

3.3.15 The reports reviewed assume broad compliance with PS 2 will be achieved but this needs to be clarified and duly documented.

3.3.16 The key requirements of PS 2 will become more relevant as the project moves into construction and operation. The numbers of people employed long term is likely to be limited, with a peak of opportunities associated with the various construction stages, and as such many of these job opportunities will be temporary in nature.

3.3.17 Potential work opportunities for local people is an important issue raised in the various consultation exercises, and is regarded as such by LTWP, who have put measures in place to manage local expectations at the windfarm site. Provisions for employment on the access road and transmission line are not known.

Windfarm and Road Upgrade

3.3.18 It is recommended that a Labour Plan is prepared in accordance with PS 2, as an LTWP Employer Requirement and part of the Contractors ESMPs. The Labour Plan should confirm the number and nature of the various employment opportunities for each project component (and project phase), document the process to demonstrate open and equitable employment procedures (which favour those locally affected communities), as well as generally state the intended position regarding those PS2 issues mentioned above, which will become pertinent as the project develops (e.g. working conditions, non-discrimination, child labour etc).

3.3.19 The collective recommendations set out in the ESIA Reports relating to OHS should be brought together in a standalone OHS Plan, taking into account the specific provisions of the relevant EHS Guidelines discussed in Section 3.1 as well as the national requirements for the preparation of an OHS Plan. The OHS Plan should also include specific provisions for the handling of emergency situations; (through an Emergency Preparedness and Response Plan, EPRP) which can also accommodate emergency provisions in relation to the public (see Section 3.5 on PS4 below).

3.3.20 The proposed amendments to IFC PS 2 (currently under review), includes specific provisions for the client to develop policies in relation to the management of workers accommodation. It is understood that this is being developed in relation to the windfarm site. However, it is recommended that a specific Accommodation Plan is developed to guide the development of workers accommodation for all project components, including the positioning of transport staging areas, worker camps, provisions for water, sanitation, waste, health (including sexual health), management of workers including behaviour and interface with local communities etc. In particular, if different Contractor camps to be erected on site then they should be managed with cognisance of each other to ensure optimal use of resources and facilities. This issue is identified in Section 3.2 above, as subject to further investigation. It is recommended that this is also included (or cross referenced) in the OHS Plan and the Labour Plan developed as part of the ESMP.

Associated Transmission Line

3.3.21 The employment opportunities associated with the transmission line will be temporary in nature with a peak of opportunities associated with the construction stage. It is recommended that a Labour Plan is developed for the transmission line by Ketraco. An OHS plan taking into account the specific provisions of the relevant EHS Guidelines discussed in Section 3.1 should also be prepared. This plan should include specific provisions for the handling of emergency situations.

3.4 PS 3: Pollution Prevention and Abatement

3.4.1 PS3 is concerned with avoidance or minimising adverse impacts on human health and the environment by avoiding or minimising pollution from project activities, and through promoting reduction of emissions that contribute to climate change.

3.4.2 PS3 covers the following areas: (i) pollution prevention, resource conservation and energy efficiency; (ii) wastes; (iii) hazardous materials; (v) emergency preparedness and response; (vi) technical guidance; (vii) ambient considerations; (viii) greenhouse gas emissions; (ix) pesticide use and management.

Review of Provisions

3.4.3 The assessments of potential impacts on individual environmental criteria presented in the ESIAs are qualitative in nature. Therefore, the anticipated performance relevant to the applicable standards for pollution and emissions in the IFC EHS Guidelines cannot be determined. The EMP Chapters of the ESIAs includes provision for the mitigation and management of potential pollution issues. Issues associated with decommissioning are discussed in the ESIAs. The following is a discussion of the key issues ascertained from the ESIAs as well as on site meetings and observations.

Noise & Air

3.4.4 The ESIA for the windfarm identifies noise and air quality impacts from road construction (and related activities of quarrying and rock crushing) as a potentially significant impact. This is also identified in the draft ESIA for the road upgrade but not examined in detail or quantified. Compliance with IFC PS cannot be verified. The need for measures for the management of construction air and noise impacts is included in the ESMP Chapters of the relevant ESIA.

3.4.5 Notwithstanding any comments that may arise from the NEMA review of the ESIA for the road upgrade, it is considered that the potential impacts on noise and air quality arising from construction and operation of both the access road network and the windfarm do require some clarification in order to fulfil the recommendations of the ESIA and allow the detailed requirements for environmental management to be defined and implemented.

Access Road and Windfarm Internal Roads Network

3.4.6 Discussions with LTWP and site observations confirm the following points in relation to the access road:

3.4.7 Vehicle movements are not presented in the ESIA for the road upgrade or any construction services such as aggregate, cement, sand and rebar etc. The total vehicle movements anticipated along the access road from Laisamis to the windfarm site are estimated by LTWP to be 12,000-15,000 round trips over a 32 month period.

3.4.8 This data has not been substantiated, or disaggregated by vehicle type and / or movements according to the time of day, and does not include for existing traffic on the road, although existing vehicular movements on the road were observed to be negligible.

3.4.9 The road will be 6m wide with a 5m wayleave to each side. The detailed alignment of the road (including the necessary wayleaves) has yet to be determined.

3.4.10 In addition to the refinement of the detailed alignment, there are two areas of the road alignment that are subject to re-routing in order to avoid the key settlements of Ngurunit, South Horr and Kurungu.

3.4.11 The proposed re-routing of the road to avoid Ngurunit follows the original road alignment (as gazetted) but which has not been used for some time.

3.4.12 The preferred realignment around South Horr may require a new road to be constructed through the bush, to the east of the Ol Donyo Mara mountain range, re-joining the main access road in the concession area. The diversion would be over a distance of around 25km and would also avoid traffic through a second settlement of Kurungu situated on the existing road between South Horr and the windfarm site. There is a settlement in the area of the proposed diversion around Ol Donyo Mara (Arge) with a population estimated at around 500. Because the diversion may be a new alignment through the bush with limited constraints, it is considered that there is sufficient flexibility in the design process to avoid significant impacts on Arge.

3.4.13 The only other discrete settlement observed along the alignment was at Illaut (on Road D371) which included village housing and a primary school. Away from the identified settlements, the number of noise and air sensitive receivers observed along the alignment was very limited, comprising isolated manyattas and other village buildings. The number and location of these sensitive receivers and their proximity to the road alignment was not documented in the ESIA.

3.4.14 Staging areas will be provided in Mombasa, Nairobi, Nanyuki, Laisamis and on the windfarm site. The scale, detailed location and nature of activities at the staging stations have not been defined. During the site visit it was noted that the Laisamis staging area is located near the start of the road upgrade works (outside of Laisamis), in the vicinity of the existing Kenya Power and Lighting Company (KPLC) facility and two village schools, one of which is privately run. The assessment of potential adverse effects on these receptors should be undertaken to ensure adverse effects are mitigated against.

3.4.15 In order to facilitate road construction, borrow areas for gravel/sand etc extraction will be identified along the alignment. It is understood that higher grade rock will be sourced from suitable sites along the escarpment which runs adjacent to the alignment. The location of these sources of rock and fill material including activities necessary for their extraction and utilisation (such as crushing and transport) will need to be determined such that any associated noise and air quality and safety impacts on identified sensitive receivers can be determined ahead of works commencing.

3.4.16 In summary, the potential effects arising from construction and operation of the road upgrade need to be better defined, taking into account the combined activities. It is recognised that the overall number of affected sensitive receivers is likely to be limited. However, better definition of the sensitive receivers and evaluation of the assessment of noise and air quality impacts on them is necessary in order to develop effective provisions for environmental management. The preferred method needs to be determined taking into account national standards, the IFC EHS Guidelines and the local conditions. Broadly, the activities are likely to include the following steps:

- Establish the final alignment of the road for upgrade, including wayleaves and diversions;
- Identify the noise and air sensitive receivers along the road alignment as well as in the vicinity of off site works activities and the Laisamis staging station;
- Confirm the total anticipated vehicular movements along the alignment throughout the day; i) during road upgrade works themselves, ii) following road upgrade works and during construction and operation of the windfarm. Vehicle movements should be disaggregated and presented by vehicular type per hour, taking into account activities at the Laisamis staging station. In addition, peculiar junctions, bridges, water courses, steep hills or long gradients will also need to be identified and surveyed;
- Confirm other sources of noise and air quality emissions and associated activities, such as fixed and mobile plant used for excavation activities at off site borrow areas, rock processing at quarry sites along the escarpment, as well as any other sites and activities used for road related works; and
- Determine acceptable noise and air quality limits, standard of fixed and mobile plant and trucks, and calculate potential construction and operational impacts on noise and air quality at identified sensitive receivers as well as any measures which might be recommended to mitigate predicted impacts for inclusion in the ESMP.

Windfarm Site

3.4.17 The ESIA for the windfarm states that there are no sensitive receivers on site and that the nearest dwellings are located some 50km from site. Overall the population density on site is very low, (+/- 2 person per km^2).

3.4.18 There is a settlement (Sirima village) comprising 50 Manyatta (and an unused school building) adjacent to the road within the windfarm site. Brief discussions on site confirmed that

population within the settlement is 250 with a total of around 500 + as part of a wider community. From discussions with LTWP it is understood that this community is nomadic in nature. However, the nature of the nomadism and the patterns of movement are not understood and as such it should not be discounted as a sensitive receiver.

3.4.19 Within the windfarm site, there will be a number of vehicle movements and other activities during construction, and further vehicle movements during operation. The magnitude of these effects will be dependent to some degree on the proposed routing of the internal roads. Whilst those vehicle movements are not quantified, given the magnitude of the works anticipated and the proximity of Sirima settlement relative to the existing road passing through the site, it is considered necessary to better understand the extent of potential safety, noise and air quality impacts upon this settlement area, and make specific mitigation/ control recommendations appropriate to the significance of the impact.

3.4.20 Operational noise impacts from wind turbines are assessed qualitatively in the ESIA as 'negligible'. As the ESIA does not acknowledge Sirima as a sensitive receiver, this assessment should be reviewed and confirmed.

3.4.21 Management of wastes (including hazardous waste) on the windfarm site during the operational phase will be via an incinerator. The design should be developed to ensure that it is sited to avoid negative air quality impacts on any identified air sensitive receivers.

Associated Transmission Line

3.4.22 Construction related noise and air quality impacts can be expected during site clearance and construction of the transmission line. Given that the transmission line is a linear construction the impact will be of a temporary nature and as such insignificant but needs to be managed appropriately.

3.4.23 The ESIA for the transmission line identifies that the low frequency noise emissions emanate from the power lines and transformer buildings. It discounts the impacts, as insignificant. However, this is not substantiated. This should be accommodated in the design process through appropriate set-back distances.

Water & Waste Water Quality

3.4.24 The ESIAs identify that existing water resources in the Project area are limited, although water demand and potential sources of water for the construction and operation of the windfarm are not described in the ESIA.

3.4.25 On the windfarm site there are no permanent surface waters and available resources are considered to be under pressure from over exploitation, although the magnitude and significance of this issue is not clear from the ESIA. The primary water source in the general area is identified as Loiyangalani Spring, which suffers from e-coli contamination. Some tribes use water from Lake Turkana which is brackish. Within the windfarm site itself, there are no known permanent water sources, apart from occasional springs and laggas which flood periodically. Current and future quality of existing water resources is a key issue of concern. As at January 2011, LTWP had applied for licenses to drill exploratory holes for draw-down tests at the windfarm site to confirm the status of groundwater availability within the Site.

3.4.26 Availability of water for road construction is also an issue which requires management. The ESIA for the Road identified a shortfall in the volumes of water needed for construction compared to available resources. LTWP has undertaken an evaluation of potential water resources (LTWP (2010) Laisamis – South Horr – Water Survey of Existing and Old Boreholes,

20 May 2010). The evaluation identified that the total water demand for road construction is conservatively estimated at 450m^3/24hr. Communications with the Northern Water Service Board have confirmed that this volume can be provided from three of their existing boreholes, subject to renovation. LTWP also explored the potential for drilling five additional boreholes along the route alignment and has undertaken meetings with local communities. The local community have saline and/or surplus fresh water which they would like to sell to the project.

3.4.27 Liquid and solid effluents from the construction camp(s) for workers, staging, laydown and storage areas have the potential to significantly impact on groundwater resources. The location of the construction worker camps and specific assessment of the potential impacts arising from water usage and wastewater discharges are not elaborated in the ESIAs, and are identified above under PS1 as issues which require clarification. The EMP Chapter includes recommendations for development of wastewater facilities.

3.4.28 The associated transmission line crosses major rivers, and passes through differing types of habitat and land-use. It is not explicitly clear from the ESIA if significant impacts are anticipated. However, following observations from the site visit it is considered that impacts on rivers etc can be avoided through design and good construction management practices.

Greenhouse Gas Emissions

3.4.29 The ESIAs do not contain an estimate of the Project's carbon footprint throughout its life cycle, although it is considered unlikely that it will breach the IFC's current threshold of 100,000 tons CO_2 equivalent aggregate emissions in any year. Whilst not pertinent at the current time, the ongoing review of the IFC PS (as discussed in Section 1 of this Review) currently proposes to reduce the reporting figure from 100,000 to 25,000 tons per annum.

3.4.30 Once constructed, the Project itself presents a significant net positive impact on global greenhouse gas emissions. The Carbon Credit potential is estimated at between 565,920 and 1,264,320 CO2 tonnes equivalent, (carbon credits) per annum. It is currently being put forward for verification as a CDM project under the Kyoto Protocol. It has been agreed that the first allocation of carbon credit revenue earned by the Project, equivalent to one US cent per kWh, will be transferred to KPLC under the terms of the Power Purchase Agreement. This revenue will then be utilised in accordance with the Generation Licence conditions, issued by the Energy Regulatory Commission, for the benefit of the communities living near the windfarm and along the transmission line.

3.4.31 The ESIA for the transmission line states that sulphur hexafluoride (SF_6) will be used in the electrical switchgear. SF_6 may also be pertinent to switch gears used on the windfarm; it has a very high global warming potential, but does have a number of technological advantages. The management of SF_6 as an insulator should be reviewed in the design process against current Good International Industry Practice.

Solid Waste and Hazardous Waste

3.4.32 The ESIA for the windfarm identifies that the primary concern during construction of the windfarm is the management of solid waste arisings from workers at the construction camp. The ESIA includes provision for the wastes to be managed via an incinerator. Wastes arising from the windfarm operations will be limited to maintenance wastes and domestic wastes from employees.

3.4.33 The associated transmission line ESIA identifies typical construction related wastes (including hazardous wastes) from machinery and maintenance activities as well as domestic wastes from construction workers. An extensive list of potentially hazardous wastes and gases

associated with the transmission line and transformers are listed, including non polychlorinated biphenyls (PCB)-containing insulating oils, and SF_6. The ESMP Chapter includes recommendations for the segregation and proper disposal of wastes.

Pesticide Use and Management

3.4.34 The ESIAs do not mention application of pesticides or herbicides. Herbicides are sometimes used to control vegetation growth beneath transmission lines. In the meeting with 42 Geomatics during the site visit, it was confirmed that the wayleaves will be cleared and maintained by hand and pesticides / herbicides will not be used. In the event this were to change, a Pesticide Management Plan that complies with the World Health Organisation (WHO) guidelines should be developed and prepared by Ketraco as part of the ESMP for the transmission line.

Other Potential Impacts Identified in the EHS Guidelines

3.4.35 The IFC EHS Guidelines for Wind Energy (2007) identify other potential impacts specific to the industry. These include; the effects of shadow flicker, landscape and visual impacts of the windfarm and electromagnetic interference and hazards to aviation.

3.4.36 Visual impacts are discussed in the ESIA. It is not established how large the visual envelope of the Project will be, or who might be impacted. It is also not noted that the collector cables will be overground. The ESIA concludes that “the completed wind park facility in otherwise an unspoilt natural environment could be visually intrusive to some people and has the potential to detract observers from the normal scenery. However, the wind park is not an ordinary sight and being a novelty, could be appealing to a wide cross-section of local community.”

3.4.37 The issues of electric and magnetic field (EMF) and aviation hazards interferences are not specifically addressed, although the Carl Bro Report (Reference SW-0011) notes LTWP has been in contact with the Kenyan Civil Aviation Authority (KCAA) regarding compatibility with civil aviation (KCAA approval of turbine height is a Condition Requirement of the Environmental License).

3.4.38 In relation to the associated transmission line, the IFC EHS Guidelines for Electric Power Transmission and Distribution (2007) also identify the potential risks to aviation and EMF interference with radio and television transmitters. It also lists exposure limits for general public exposure to electric and magnetic fields published by the International Commission on Non-Ionizing Radiation Protection (ICNIRP). These issues are not discussed directly in the ESIA for the transmission line, it will be necessary to accommodate these provisions through set-back distances in the project design as it develops.

Conclusions & Recommendations

3.4.39 The requirements of PS3 are variously addressed in the ESIAs, although detailed information on the location of project elements for the windfarm, road and the associated transmission line is limited.

Windfarm

3.4.40 It is considered necessary to better understand the extent of potential safety, noise and air quality impacts upon Sirima village, and make specific mitigation/ control recommendations appropriate to the significance of the impacts.

3.4.41 The specific impacts of the worker camps (waste and wastewater) as well as overall impacts of water supply for the worker camp and construction activities generally need to be clarified to ensure their effective management (see Section 3.2 on PS1).

3.4.42 A Waste Management Plan incorporating provisions for the management of hazardous wastes should be developed as part of the overall ESMP.

3.4.43 Industry specific issues identified in the EHS guidelines for wind energy, such as EMF interference and exposure to electric and magnetic fields should be addressed in the design; these are equally pertinent to PS4 below.

3.4.44 The verification of the Project under the CDM is ongoing. This element of the Project is being addressed separately and no further action is anticipated at this stage. In due course it will be necessary to report on carbon credits traded, under the provisions of the CDM of the United Nations Framework Convention on Climate change (UNFCCC).

Road Upgrade and Windfarm Internal Road Network

3.4.45 In order to prepare focused ESMPs, the sensitive receivers and associated safety, noise and air quality impacts from transportation during construction and operation need to be better defined in relation to vehicular movements along the upgraded transport route to site and should include staging areas as well as access routes in and around the windfarm. The assessment should also include fixed and mobile plant on the site, as well as borrow pits and work areas.

Associated Transmission Line

3.4.46 If pesticides are used for the control of vegetation growth below the transmission line, the ESMP for the transmission line should make provisions for the management of pesticides in a manner that is consistent with WHO guidelines.

3.4.47 Industry specific issues identified in the EHS guidelines for electricity transmission, such as EMF interference and exposure to electric and magnetic fields should be addressed in the design.

3.5 PS 4: Community Health, Safety and Security

3.5.1 PS4 requires the assessment and communication of risks arising from the project on the local community and general public.

3.5.2 Specific aspects of community health, safety and security covered by PS4 are: (i) infrastructure and equipment safety; (ii) hazardous materials safety; (iii) environment and natural resource issues; (iv) community exposure to disease; (v) emergency preparedness and response; and (vi) security personnel requirements.

Review of Provisions

Infrastructure & Equipment Safety

3.5.3 Because of the low density of inhabitants on the windfarm site, the number of people at risk from accidents involving the windfarm infrastructure is limited. In order to limit any restrictions on grazing, the general windfarm area will not be fenced off (apart from the on-site switchyard and individual transformers). The windfarm area will be manned, and therefore risks to the

community arising from unauthorised climbing of turbines etc are considered to be limited and easily managed.

3.5.4 Along the associated transmission line, the southern portion runs through inhabited areas. Local communities may be exposed to typical risks such as electrocution, electromagnetic interference (including aircraft navigation safety) and EMF, as well as to noise and ozone. These risks are identified in the ESIA, and should be managed through detailed alignment and design standards.

3.5.5 The ESIA for the transmission line identifies that in some of the areas of the route alignment, intercommunity rivalries exist. In other parts of the country where such conditions are prevalent, locals typically use high points in the landscape as observatory points to monitor movements of their adversaries. In the absence of suitable hills and tall trees, this can include transmission towers and there are reported fatalities as a result. The design should include measures to prevent attempts at illegal connections.

3.5.6 General risks to the community arising from the road construction, as well as construction related vehicle movements to (and within) the site, are identified in the ESIA for the windfarm, and mentioned briefly in the ESIA for the road upgrade. The ESIA for the road upgrade notes that provisions for mitigation management will be included in the contract. Whilst the anticipated increase in vehicle movements has yet to be determined the current volumes of vehicle and plant movements on the access road and on the windfarm site are currently very low. Those communities and small holdings along the alignment are not used to frequent traffic and are at risk from traffic incidents. Whilst not quantified, the proposals to divert the access road to avoid the settlements of Ngurunit, South Horr and Kurungu will reduce the overall risk to those local communities from vehicular traffic. These risks and recommended measures for management need to be determined more specifically in relation to all communities along the entire length of the existing transportation route and the community on the windfarm site, taking into account increased traffic (including the staging station near Laisamis), and all associated worksites including borrow areas and quarries.

Hazardous Materials Safety

3.5.7 Discussion of the potential for hazardous materials is presented under PS 3 (Section 3.4 above). The ESIAs do not identify any hazardous waste issues specific to the local community for either the windfarm, access road or the associated transmission line. In the event hazardous materials are used in the transformers and switch gears, these should not be accessible to the community, and will be protected from theft. It is understood that pesticides would not be used for the transmission wayleaves.

Environment and Natural Resource Issues

3.5.8 The ESIA for the windfarm discusses potential impacts upon natural resources used by affected communities. There is a low density of people in the windfarm area, which is predominantly rocky desert, and therefore, this area is not widely used for its natural resources. However, the wood fuel resources are limited and are already under stress, due to low rainfall and overexploitation. An influx of construction workers could significantly exacerbate this shortage, unless alternative fuel is provided.

3.5.9 Two additional issues which will require management through the ESMPs for both the windfarm and access road include i) the avoidance of potential effects on soil and groundwater arising from waste and wastewater from the proposed camps for construction workers, and ii) the avoidance of negative effects arising from the abstraction of water needed for construction

activities, on existing groundwater reserves. Existing water resources are scarce and increased pressure on those resources (either actual or perceived) could result in community discord or conflict.

3.5.10 Due to the linear nature of the works for the transmission line, no significant/ long-term impacts are expected, although the general management of construction worker camps remains a key issue in terms of community relations.

Community Exposure to Disease

3.5.11 The ESIA for the windfarm identifies that poor health conditions are prevalent in the Project area, a situation which has arisen, in part, due to poor quality of groundwater resources. This makes the local population (in the windfarm district) sensitive to disease. A description of the communities and their general health along the associated facility transmission line route is not presented in the windfarm ESIA. The three ESIAs identified the risk of increased exposure to sexually transmitted disease arising from an influx of workers (and others e.g. long haul drivers and commercial sex workers, from outside the area as a significant disease risk. A number of stakeholder groups consulted as part of the ESIA for the windfarm specifically identified this as concern to them. These issues are also generally raised as concerns for the road upgrade construction activities, including the risks associated with water-borne disease vectors breeding in standing waters which may accumulate in shallow excavations.

3.5.12 Provisions for the location, design, establishment and management of the staging areas and worker camps need to be defined to minimise risks. Education and awareness raising of the local communities to risks of communicable diseases has been proposed as part of the ESIAs. This should be developed as part of ongoing ESMP (through the CEP).

Emergency Preparedness & Response

3.5.13 An EPRP should be developed which sets out specific provisions for handling emergency situations. This should be developed as an integral part of the OHS Plan described under PS2 for workers on the Project, extended to include for the potential community impacts associated with all elements of the Project (e.g. road traffic accidents, fallen cables with risk of damage to property or loss of life, etc).

Security Personnel Requirements

3.5.14 The windfarm site itself is seen to be secure, however areas to the north have suffered from conflict and tribal groups have relocated to the general Project area as a result. There are no specific security concerns cited for the access road or associated transmission line, but both the windfarm and transmission line ESIAs include recommendations for the provision of security personnel during construction and operation. It will be necessary for security personnel to be well trained and sensitive to the need for maintenance of good relations with all local communities, to ensure goodwill for the developments and avoid potential inter-tribal conflict.

Conclusions & Recommendations

3.5.15 The Project is broadly compliant with the requirements of PS4.

Windfarm and Road Upgrade

3.5.16 As part of the OHS Plan, an EPRP should be developed to manage issues of community safety. The OHS Plan should also include monthly reporting statistics such as identification numbers, number employed, role/ grade, sex, for both permanent and temporary employees as

well as all safety incidents including those of a minor nature in addition to Lost Time Accident (LTA) as defined in the Employers Requirements.

3.5.17 Special consideration should be given to the management of increased movement of plant and vehicles along the entire transport route and access roads within the windfarm site. The detailed design of the arrangements for the worker construction camp provision for water resources should be developed to avoid impacts on soils and groundwater resources including potential community conflicts arising from increased pressure on these limited resources.

Associated Transmission Line

3.5.18 The detailed design of the pylons and route alignment should be developed to actively avoid the potential for accidents arising from electrocution, and also exposure to electric and magnetic fields.

3.6 PS 5: Land Acquisition and Involuntary Resettlement

3.6.1 PS5 includes requirements for the assessment and management of the compulsory acquisition of land as well as involuntary resettlement, including both physical and economic displacement, as a result of project related land acquisition. Physical displacement involves the relocation or loss of shelter. Economic displacement involves the loss of assets, or access to assets (e.g. water supply or grazing land) and therefore a loss of income or livelihood.

3.6.2 Under the principles of PS5, the project sponsor must establish and disclose the criteria by which affected people will be considered eligible for compensation and other resettlement assistance. This procedure should include provisions for consultations with affected persons, households, and community leaders, local authorities, and, as appropriate, non-governmental organisations (NGOs).

3.6.3 Under PS5, displaced persons in the following two groups are entitled to compensation for loss of land or other assets, such as dwellings and crops taken for the project, and to resettlement assistance:

1. Those who have formal legal rights to land or other affected assets (including customary and traditional rights to the use of land or other assets); and
2. Those who do not have formal legal rights to land or other assets at the time of the census, but who have claim to such legal rights by virtue of occupation or use of those assets.

3.6.4 Entitlement is based on land use/ occupation up to a specific cut-off date at which the census is taken. Entitlement is not necessarily based upon permanent use or occupation, and equally applies to nomadic peoples who use the land on a seasonal basis. PS5 does not apply to anyone who occupies or uses the land after the cut-off date.

3.6.5 Specific aspects of land acquisition and involuntary resettlement covered by PS5 are: (i) compensation and benefits; (ii) consultation; (iii) development of a grievance mechanism; and (iv) resettlement planning and implementation for physical and economic displacement.

Review of Provisions

3.6.6 The ESIA for the windfarm concludes that there will be no requirement for land acquisition or resettlement for the development of the windfarm. Public consultation identified the potential loss of grazing land as a key concern. To accommodate this, the windfarm area will not be

fenced off (apart from the switchyard and individual transformers for safety reasons) and grazing will be allowed between the turbines.

3.6.7 There is a settlement found on site (Sirima Village), clarification of the magnitude of potential environmental and social impacts on this settlement and any other sites used by the nomadic community is ongoing as the design is progressed and the findings will determine if the impacts are likely to be adverse, mitigable or if relocation from these areas is required. Although no resettlement is currently envisaged, the Resettlement Policy Framework (RPF) prepared for the project (November 2010) outlines the measures to be adopted in preparing a Resettlement Action Plan (RAP) to guide potential resettlement for all Project components (including associated facilities).

3.6.8 The ESIA for the windfarm also discusses the potential impact of the road construction works. It states that the proposed road rehabilitation will follow the current Right of Way (RoW) for the existing road and therefore there will "virtually be no displacement of local people and destruction of property including the community manyattas". The ESIA for the road upgrade does not specifically address the potential for impacts, or identify villages or structures that might require resettlement. However, an outline of provisions (in accordance with IFC Standards) is included in the ESIA.

3.6.9 From a review of the ESIAs, the site visit and the discussions with the Consultant who prepared the ESIA for the road upgrade, whilst the number of people and structures observed along the road alignment is clearly very small, the overall need for economic and physical resettlement requires clarification.

3.6.10 Assumptions that physical resettlement will be required seem to have been based on the road alignment passing through the villages of Ngurunit, South Horr and Kurungu. Current plans are to re-route in order to avoid these settlements, which (on the basis of site observations) would be of major overall benefit in terms of reducing resettlement. However, it is necessary to confirm the status of the requirements for economic and physical displacement as a result of the road works (including those people within the original RoW), along the remainder of the works, taking into account the detailed alignment including the wayleaves, and any associated works and facilities or activities off the main alignment such as borrow pits, access tracks and the staging station near to Laisamis junction. The RPF prepared on behalf of LTWP in November 2010 provides the guiding principles to be applied if resettlement was required for the road up-grade.

3.6.11 Land acquisition and resettlement will be required for the construction of the associated facility transmission line. The ESIA for the transmission line identifies the provision for land acquisition under Kenyan Law and the general procedures for acquisition adopted by KPLC. However the potential need for land acquisition and resettlement is not specifically addressed. Supporting study documents do explore this requirement further. Subsequent to the ESIA, a stand-alone socio-economic report was prepared for both the windfarm and transmission line, dated March 2009 (Reference SW-0007). This identifies displacement of individuals along the transmission line as a potential impact which should be mitigated via compensation in line with Government compensation regulations. Management of this process is discussed and outlined in the Chapter entitled Socio Management and Monitoring Plan including the recommendation for the development of a RPF.

3.6.12 A Route Clearance Evaluation Report was subsequently prepared in December 2009, (Reference SW-0010). The Report presents an impact assessment of the route clearance activities including an evaluation of impacts and mitigation measures and an outline ESMP. The Report assumes a corridor of 428km by 60m plus access roads. Detailed drawings are not

presented. It is understood that design and routing measures to avoid resettlement have been explored, but this process has not been documented. Households to be physically resettled are identified in the report (250 properties) including details of owner, dimensions of property, type of construction and anticipated costs.

3.6.13 On 2 August 2010, the Review team (including LTWP), met with 42 Geomatics (and their sub-contractors) - who developed the route alignment for the associated transmission line. A subsequent meeting with Ketraco, who will implement the development of the transmission line, was held on 5 August 2010. Whilst not documented in the Report SW0010, 42 Geomatics provided a presentation on the development of the preferred transmission line route alignment, as well as the process of site selection for the switchyard at Suswa. This included the process of consideration of constraints and alternatives and the measures taken to minimise impacts. It is understood that the route has been extended by approximately 30km so as to avoid resettlement. The 250 properties identified in Report SW-0010 were noted to be a provisional estimate. 42 Geomatics has since commenced the wayleave application process, and has prepared cadastral plans of the plots to be affected. At the time of writing this report 1,200 plots of land had been identified as being affected, and a best estimate of the total number of Project Affected Persons (PAPs) is in the order of 2,500. Provisional consent for land acquisition has been provided by 95% of landowners and the total number of PAPs will be confirmed in the detailed surveys which will follow.

3.6.14 The transmission line wayleave consenting process taken to date was described in the meetings, and appears to be following a systematic procedure including active measures to sensitise the local communities. However the methodology and basic criteria have not been documented, and so the resettlement process to be adopted compared to the requirements of PS5, requires further examination.

3.6.15 A visual survey of the alignment for the transmission line was carried out via helicopter on 3 August 2010. This allowed both confirmation of the findings of the reports to date and assurances that there were no apparent significant issues along the alignment hitherto unreported. By its nature, the process of resettlement and land acquisition is slow and issues can be expected. However, along the length of the 428km of preferred alignment, the majority of the requirements for resettlement are concentrated within the southern portion, between the Terminal Point at Suswa and Angle Point (AP) 12, (a distance of 158km). The remaining distance of 270km from AP12 north to the windfarm site is primarily through trust land. The requirements for physical resettlement in this area will be limited. A typical photograph of the trust land is shown in Appendix 2.

3.6.16 As discussed in PS1 the transmission line is considered to be an “Associated Facility”. The transmission line will be predominantly funded by the Spanish Government and implemented by Ketraco. Financing of the transmission line had not been concluded at the time of writing. In line with IFC requirements, where resettlement is the responsibility of the host government as in this case, LTWP will collaborate with Ketraco to the extent permitted by Ketraco to achieve the outcomes that are consistent with the objectives of IFC PSs. To this end, LTWP have prepared a RPF for all project components including the transmission line.

3.6.17 A further detailed gap analysis of the wayleaves acquisition process followed to date against IFC RAP requirements and other best practice has been undertaken and is presented in Annex 1 to RPF. The gap analysis identifies specific areas where the transmission line’s wayleaves acquisition process does not meet the IFC requirements and gives recommendations on ways to fill in the gaps. The findings of the analysis have been provided to Ketraco and discussions are on going on ways to bring the process in line with the standards.

Resettlement Policy Framework (RPF)

3.6.18 The RPF has been prepared to guide land acquisition and involuntary resettlement for the overall LTWP Project including the associated transmission line. The RPF establishes the principles, procedures, entitlements and eligibility criteria, the organisational arrangements, and provisions for monitoring and evaluation, the framework for participation, as well as the mechanisms for redressing grievances which will be applied to the overall Project.

3.6.19 Specific RAPs will then be developed for each project component, on the basis of the resettlement framework where involuntary resettlement and land acquisition are required. The scope and level of detail of the RAP will be dependent on the magnitude of displacement and the complexity of the measures required to mitigate adverse impacts.

3.6.20 The RAP(s) should be developed taking into account Kenyan Laws on resettlement and, in the case of the transmission line, existing procedures and policies of the Government and Ketraco. The RAP process should include a legal framework to compare Kenyan laws and regulations with the IFC policy, identify any gaps between the two, and establish how those gaps can be filled. The legal framework is the foundation for three key elements of the RAP:

1. establishing rates of compensation;
2. determining eligibility; and
3. establishing mechanisms to resolve grievances among affected people.

3.6.21 As a minimum, the RAP should:

- identify all people to be displaced;
- demonstrate that displacement is unavoidable;
- describe the process of consultation with affected people regarding acceptable resettlement alternatives, and the level of their participation in the decision-making process;
- describe the entitlements for all categories of displaced people;
- enumerate the rates of compensation for lost assets and demonstrate that these rates are adequate, i.e. at least equal to the replacement cost of lost assets;
- describe relocation assistance to be provided;
- outline the institutional responsibility for the implementation of the RAP and procedures for grievance redress;
- provide details of the arrangements for monitoring and evaluation; and
- provide a timetable and budget for the implementation of the RAP.

Conclusions & Recommendations

Windfarm and Road Upgrade

3.6.22 Currently, the windfarm and road upgrade are in-line with PS5 as the RPF covers these aspects. Work is on going to establish whether relocation of Sirima settlement will be required to mitigate against adverse effects during the construction stage. Similarly, as the road design progresses, it will become clearer whether physical and/ or economic displacement is necessary to accommodate the road upgrade works.

Associated Transmission Line

3.6.23 The RPF has identified areas where the associated transmission line wayleaves acquisition process is not currently compliant with the principles of PS5. The RPF identifies ways to bring the process in line with PS5. These findings have been presented to Ketraco in Q4 2010. As discussed previously, as this is an associated facility, LTWP will collaborate with Ketraco to the extent permitted by Ketraco to achieve the outcomes that are consistent with the objectives of PS5 with regard to resettlement issues associated with the transmission line.

3.7 PS 6: Biodiversity Conservation and Sustainable Natural Resource Management

3.7.1 PS6 provides for the protection and conservation of biodiversity. It aims to promote sustainable management and use of natural resources through the adoption of practices that integrate conservation needs and development priorities.

3.7.2 Relevant aspects of biodiversity and sustainable management of resources covered by PS6 are: (i) the protection and conservation of biodiversity of different habitat types - including protected areas; (ii) the control of invasive species; and (iii) the management and use of renewable natural resources.

3.7.3 A site visit was carried out by two Scott Wilson ecologists / ornithologists (28 July to 3 August 2010) as part of the commitment to begin baseline surveys of migratory birds at the windfarm site. Whilst not a formal recommendation of the ESIA or a condition of its approval, the site visit did allow an informal review of the ecological sensitivity for the windfarm site, road upgrade and associated transmission line route. The conclusions of the ESIAs were confirmed during the review. The review of the transmission line alignment has allowed some additional recommendations to be made, as noted below.

Review of Provisions

Protection of Habitats

3.7.4 The ESIA for the windfarm does not present a habitat map of the site, but describes the area generally as being covered by deciduous dwarf shrubland, with large areas of barren land where vegetation is very scarce. The limited vegetation is under pressure from over exploitation, and plants play an important role in the life of pastoralists of the Project area providing firewood, materials for the construction of the houses and livestock enclosures.

3.7.5 Fauna is similarly limited. The ESIA reports low densities of wildlife (especially game - due to poaching), within the proposed windfarm area and intense competition between the wildlife and livestock. This competition is regulated by availability of grazing, and hence the overall wildlife population density is very low. During the visit, the presence of the endangered Grevy's Zebra was noted to the south of the site boundary. Whilst not likely to be directly impacted, it is likely that the zebra would use the site for grazing, as they have large territories.

3.7.6 The windfarm is on a sparsely vegetated, rocky substrate and not in a protected area or sensitive habitat. Direct impacts of the turbines themselves through loss of habitat are anticipated to be limited.

3.7.7 The principal area of interest in relation to biological diversity is Lake Turkana itself, which is internationally recognised as an Important Bird Area (IBA). Note, there are three Ramsar sites in Kenya, none of which are within the footprint of the windfarm, road upgrade route or associated transmission line alignment. The lake is used by a variety of Palearctic and intra-

African migrants. Internationally, the understanding of impacts of windfarm developments on avifauna is emerging and subject to a great deal of research and debate. The ESIA identifies primary impacts related to i) disturbance leading to displacement or exclusion of birds; and ii) collision with turbines. A major factor in the assessment of potential risk, is the nature and behaviour of bird species using the area, and the surrounding habitats and terrain. However there was no discussion of the bird species using the windfarm site itself. The ESIA concluded that the impacts of the windfarm upon bird species using Lake Turkana are not likely to be significant, due to the distance separation from the Lake (10km); however it also identified the need for more formal bird surveys to confirm its findings. The site visit undertaken to design the ornithological surveys was in response to this recommendation for additional surveys, and to understand better the bird activity on the windfarm site. The site visit found the presence of target species, including raptors using the proposed windfarm site in low numbers. Their flight activities over the 12 month period will be monitored and risks evaluated relative to the turbines.

3.7.8 Similarly to avifauna, recent studies have shown impacts of windfarms on bats. The windfarm site was assessed as having a low risk to bats with limited roosting features on or close to the site. However, due to the lack of bat data, particularly on migratory species in the area, (National Museums of Kenya, NMK *pers com*) some additional bat survey work is proposed.

3.7.9 The site visit fundamentally confirmed the conclusions of the ESIA. The species lists identified in the ESIA were extended, but there were no unexpected features on site to cause additional concerns in relation to impacts and management of ecological resources, although the observation of protected species, such as Grevy's Zebra supported the need for a ban on hunting for bush meat on the Project.

3.7.10 The outline ESMP includes provision for restoration of lost biodiversity on the disturbed area through planting of appropriate trees and shrubs and protection of fauna species and their habitat. This is applicable to all project areas, including the access road, although there is no specific discussion of potential impacts arising from the construction of the access road.

3.7.11 The nearest protected areas to the Project are Mt. Kulal Biosphere Reserve and the South Island National Park which are situated to the east and west of the windfarm site respectively and are not anticipated to be impacted.

3.7.12 The evaluation of impacts on biodiversity presented in the ESIA for the associated transmission line is limited. The ESIA states that there is a rich mix of animal and bird species distributed along the entire corridor; including a number of wildlife conservancies, especially in the Rumuruti area. It also confirmed that from the inception stage, the selection of the transmission power route aimed to avoid interference to/encroaching on the wildlife sanctuaries. The IFC EHS Guidelines for electricity transmission identifies alteration of terrestrial habitat, and collisions with bats and birds as a potentially key risk. The ESIA reports that Kenya Wildlife Services who were consulted did not express any particular concerns in this regard. Given the lack of confirmatory data, and the relationship of the transmission line to the windfarm (which will be subject to international scrutiny in terms of impacts on birds and bats), the transmission line was visually surveyed during the Site visit to confirm that there were no significant issues not reported in the ESIA.

3.7.13 There were two areas of interest noted which warrant consideration in the development of the design and the transmission line ESMPs; those are the Pesi swamp and the Malewa River.

- Pesi Swamp is a wetland area dominated by papyrus with areas of open water. Ibis and Egrets were observed during the flyover survey. The distance to be traversed across the

swamp by the transmission line would be a maximum of 500m. It is recommended that towers should ideally be placed such that they avoid the marsh habitats and overall, vegetation clearance in these habitats is minimised. Because the swamp attracts wetland birds, larger water birds may be killed if they fly into the cables. It is recommended that marker buoys, are placed on these cables to make them more visible, reducing the potential for collisions.

- The transmission line crosses the Malewa River up to mature Cedar woodland on a ridge. Due to the large area of woodland likely to be removed it is recommended that the loss is mitigated through the planting of new native woodlands.

3.7.14 The site visit confirmed that vegetation clearance along the alignment of the road upgrade should be minimised as far as is practicable, and that collection of firewood and hunting of bush meat by contractors should be avoided. It also confirmed that no habitats of significant ecological interest are likely to be affected by the road upgrade works, although active bird nests should be avoided where practicable.

Control of Invasive Species

3.7.15 The ESIA for the windfarm site has identified the presence of an invasive plant species - prosopsis (*Juliflora prosopsis*) - in the Project area, which is competing with native species for limited resources. Direct impacts arising from the Project are not discussed or anticipated- unless the development of the windfarm exacerbates the spread of the species, or other invasive species are introduced to the area as a result of an influx of workers.

3.7.16 The potential for invasive species to colonise the area along the associated transmission line is not identified in the ESIA. This can be an issue (see EHS Guidelines for Electric Power Transmission and Distribution) where vegetation cleared from within wayleaves is then replaced by faster growing invasive weed species. However, the likelihood of this is limited, as clearance of vegetation will be by hand, and so carried out to the minimum extent necessary. In the lower parts of the alignment (Suswa to AP 12/13), there are a number of crops which if lost, will be replaced as soon as practicable.

The management and use of renewable natural resources

3.7.17 This criteria typically relates to the sustainable use of natural resources such as forested areas or fishing resources or similar. None of the different development components will rely upon the exploitation of eco-services or have a direct effect on such renewable natural resources.

Conclusions & Recommendations

Windfarm and Road Upgrade

3.7.18 The windfarm is on a sparsely vegetated, rocky substrate and not in a protected area or sensitive habitat and direct impacts leading to loss of habitat are anticipated to be limited. The ESIA for the windfarm accords with the requirements of PS6. A one-year programme of bird surveys was recommended in the ESIA. The surveys commenced in October 2010 and are on-going.

3.7.19 No habitats of significant ecological interest are likely to be affected by the road upgrade works, although active bird nests should be avoided where practicable. Vegetation clearance along the alignment of the road upgrade should be minimised as far as is practicable, and collection of firewood and hunting of bush meat by Contractors should be avoided.

3.7.20 ESMPs should be developed to include the requirements to manage the impacts on ecological resources in the Project areas, including additional specific mitigation recommendations in relation to avifauna.

Associated Transmission Line

3.7.21 The evaluation of impacts on biodiversity presented in the ESIA for the transmission line is limited. Pesi swamp and Malewa River were noted as areas of interest warranting further consideration in the designing of the project. For Pesi Swamp, it is recommended that towers should ideally be placed such that they avoid the marsh habitats. Vegetation clearance in these habitats should be minimised. It is also recommended that that marker buoys, are placed on the cables to make them more visible to larger water birds, reducing the potential for collisions. With regard to Malewa River, it is recommended that the any loss of Cedar woodland is compensated through the planting of new native woodlands.

3.7.22 The transmission line ESMP should include the requirements to manage the impacts on ecological resources along the route, including replacement planting along the line and the need to ensure provisions in the Contract against hunting of bush-meat by Contractors' staff.

3.8 PS 7: Indigenous Peoples

3.8.1 PS7 requires the evaluation of impacts on indigenous peoples, and their unique cultural systems and values. There is no universally accepted definition of 'indigenous peoples'. PS7 uses the term generically in regard to a distinct social and cultural group which displays the following attributes to a greater or lesser extent:

- Self-identification as a distinct group and recognition of this identity by others;
- Collective attachment to distinct habitat/territory in the project area;
- Customary cultural, economic, social or political institutions that are separate from those of the dominant society/culture; and
- An indigenous language (often different to the official language of the country or region).

3.8.2 Issues covered by PS7 include: (i) information disclosure and informed participation; (ii) impacts on traditional lands; (iii) relocation of indigenous peoples from traditional lands; and (iv) cultural resources.

Review of Provisions

3.8.3 The windfarm falls within Loiyangalani Division in the greater Marsabit District (Laisamis District). The windfarm site is very sparsely populated (1-2 people km^2). The general area is inhabited by four ethnic groups including the Turkana, Samburu, Rendille and El Molo. The ESIA for the windfarm does not specifically identify these groups as being "Indigenous Peoples" as defined by the IFC. These groups do see themselves as distinct, and as such this distinction would be in accordance with the principles of the definition of Indigenous Peoples.

3.8.4 Regardless of the application of strict definition, because of the general nature of the extensive land use in this area, the low population density, and competition for existing resources, the indirect effects could be significant. Extensive consultation with tribal and ethnic groups (as well as NGOs and community based organisations) has been carried out as part of the ESIA for the windfarm and LTWP has provisions for ongoing liaison with the local communities. Concerns raised in various stakeholder meetings included:

- Potential erosion of their cultural identity as a result of the influx of workers - many elders were concerned that the youth would copy outside culture and forget their own cultural attributes;
- Potential loss of grazing land used by pastoral nomadic peoples (it was explained that this was not an issue because the site will not be fenced).

3.8.5 It is not described in the ESIA whether any particular groups would be affected by the Project to a greater extent than another because of their characteristics as indigenous peoples. However, there does exist in the wider area slightly marginalised groups. For example, the ESIA notes that in 2007 the El Molo peoples were involved in a tribal clash in their homeland to the north of the Project area, and were displaced southwards, they are now living in Loiyangalani town (which is located outside of the Project area).

3.8.6 Consultation on the Road Upgrade ESIA did not raise any direct concerns regarding ethnicity. The ESIA for the associated transmission line identifies ethnic groups along the various portions of the route transect. A consultation programme including community meetings and questionnaires was carried out, along the route which identified tribes and key community concerns. As for the windfarm ESIA, tribes are not specifically identified as Indigenous Peoples, and it is not perceived that any particular groups are disadvantaged relative to another because of cultural differences. A key concern raised by tribal groups in consultation was the potential for conflict arising from cultural differences with migrant workers involved in construction of the transmission line.

Information Disclosure

3.8.7 As discussed above, consultation has been carried out for the Project and associated transmission line development, and the ESIAs confirm that this will be ongoing. A CEP should be prepared, and measures taken to ensure that grievance redress procedures are in place and communicated to all affected communities. There is a formal programme of CSR for the windfarm project which aims to facilitate a positive relationship with local communities (see Section 3.2, PS1). The ongoing provisions for the associated transmission line have not been set out, but monitoring is identified as necessary in the ESIA, and community liaison will be specified under any RAP.

Relocation of Indigenous Peoples from Traditional or Customary Lands & Cultural Resources

3.8.8 There are no known issues associated with relocation of indigenous peoples from customary lands, over and above the requirements for resettlement discussed in PS5 above.

Conclusions & Recommendations

Windfarm and Road Upgrade

3.8.9 The Project is broadly compliant with the requirements of PS7. Given the traditional livestock rustling among communities (particularly in northern Kenya) and normal competition for scarce resources in arid areas, the relationships among pastoral communities can be strained. The proposed Project could exacerbate this delicate situation if it is perceived to benefit certain communities or tribal groups more than others. It is apparent from the meetings with LTWP and through the site visit that LTWP is sensitive to this issue and have consulted extensively with all groups and communities, in order to ensure equal handling of the different tribal groups in relation to consultation and management of benefits that the Project will bring to the area. This approach needs to be documented in the CEP and Labour Plan, (see PS 1 and PS2).

3.8.10 The ESMP (including a Monitoring programme), RAP and the ongoing CSRP for the windfarm should continue to be developed with cognisance and sensitivity to rights and issues of the tribal groups. The opportunity to implement "quick wins" from the CSRP (see Section 3.2) in order to bring early benefits to those most likely to be directly affected is recommended.

Associated Transmission Line

3.8.11 The proposed development is broadly compliant with the requirements of PS7. Similar to the windfarm and road upgrade above, the proposed project could exacerbate the delicate situation with regard to relationships among the pastoral communities if it is perceived to benefit certain communities or tribal groups more than others. The RAP for the project should be developed with cognisance and sensitivity to rights and issues of the tribal groups that may be affected by the wayleave corridor.

3.9 PS 8: Cultural Heritage

3.9.1 PS8 is concerned with the protection of cultural heritage from the adverse impacts of projects.

Review of Provisions

3.9.2 The ESIAs for the windfarm and road upgrade did not identify any issues of cultural heritage concerns. The Conditions set out in the NEMA Licenses for the windfarm and for the transmission line, included a requirement for Approval to be granted by NMK. NMK is the Authority in relation to archaeology in Kenya.

3.9.3 NMK directly undertook an archaeological survey of the windfarm site between May 7 and 18 2010. A report is under preparation. NMK issued a letter of approval to LTWP (date 22 June 2010), confirming that the windfarm site has some modern burial cairns (which should be avoided) but these are located away from the proposed areas for development. Overall NMK concluded in their letter that the site has modest archaeological heritage to impede the development of the windfarm.

3.9.4 The ESIA for the associated transmission line identified sites near the alignment which are of cultural and religious significance to Rendille and Samburu communities, including i) a site near Salima where community cultural festivals are held; and ii) a site at Mt Ngiro which is also used for cultural festivals (Mugget). The ESIA recommends that the detailed alignment of the transmission line is routed to avoid these areas. In the meeting with ESIA Consultant, Professor Njoroge, it was confirmed that discussions were held with local communities in relation to these sites and that there is adequate flexibility in the design to avoid impacting these sites. Similarly to the windfarm site ESIA Licence, a Condition of the transmission line ESIA Licence is to obtain "approval" from NMK. The responsibility for fulfilling this clause, as is the case with all 18 Conditions, lies with Ketraco.

Conclusions & Recommendations

Windfarm and Road Upgrade

3.9.5 The Project is compliant with the requirements of PS8. Significant issues of cultural heritage are not anticipated. Any recommendations set out in the NMK Archaeological Survey Report of the windfarm site, should be incorporated in to the ESMP. It is recommended that Chance Find Procedures as described in PS 8 are followed in case of archaeological resources being identified during construction or other phases. These procedures will prevent chance finds from

being disturbed until an assessment by a competent specialist is made and actions consistent with the requirements of PS 8 are implemented.

Associated Transmission Line

3.9.6 For the transmission line as the design is finalised, local concerns regarding areas of land which are of cultural value should be accommodated, and those issues managed with relevant communities via the ESMP and ongoing consultation.

4 Summary & Recommendations

4.1 Summary

4.1.1 The Lake Turkana Wind Power project aims to provide 300MW of wind energy to the national grid of Kenya. As a project it is of significant strategic benefit. The windfarm site area extends over 100km^2 and is located in the Marsabit District in the northwest of the country. Within the site, the turbines are to be situated at least 8km to the east of Lake Turkana. The Project, being developed by LTWP, comprises two components:

- Windfarm of 365 turbines, plus grid collector system and substation; and
- Upgrade of approximately 200km of existing rural road, road D371 from the junction at Laisamis to South Horr and C77 South Horr to Loiyangalani (exact route to be confirmed), in order to provide access for construction and maintenance of the windfarm site.

4.1.2 A 400kV transmission line is also being developed by Ketraco. It will traverse from the windfarm site over a distance of 428km south to a switchyard at Suswa, where it will connect to the existing transmission line between Akira and Nairobi. The transmission line is deemed an associated facility.

4.1.3 This Review against the IFC Performance Standards has been carried out with reference to the approved ESIA documents and other supporting project studies. The Review was verified in August 2010, through a site visit and a number of meetings in Nairobi with LTWP and Ketraco as well as the ESIA project consultants.

4.1.4 The site visit to verify the findings of the ESIA comprised driving the length of the road to be upgraded from (near) Laisamis Junction to the windfarm site and two days travelling around the windfarm site. A visual reconnaissance of the associated 428km of transmission line alignment via helicopter survey also took place.

4.1.5 The ESIAs are qualitative in nature without detailed plans. Whilst there are issues which require resolution, observations on the windfarm site confirm that from a strategic perspective, the Project benefits from being in a very remote location (with low population density), has no operational emissions, and a small footprint. Along the road alignment, the number of affected properties was observed to be small.

4.1.6 Each ESIA includes a chapter setting out an outline environmental/social management plan. The NEMA approved ESIAs for the windfarm and associated transmission line were completed in 2008 and Environmental Licenses issued (with Conditions) in 2009. The ESIA for the road upgrade was completed in June 2010, has been submitted to NEMA for approval[8].

[8] The Road Upgrade ESIA has since been approved and a Licence was issued in January 2011.

4.2 Recommendations

4.2.1 Notwithstanding the overall remote location of the Project; from the review of the ESIA Reports and the site visit, there are certain environmental and social issues that do require clarification, such that the recommendations of the ESIAs can be defined into actions and taken forward. This will also ensure compliance with the IFC Performance Standards / Equator Principles and World Bank Health and Safety Guidelines. These include:

Windfarm Site and Road Upgrade

- Provide confirmation that there is sufficient water for the construction and operation of the windfarm and access road, and put in place measures to ensure that this can be achieved without causing perceived or actual significant adverse negative effects to local communities. For the windfarm this should be subject to the findings of the pump tests. Any recommendations should be reported in a Water Management Plan, which will form part of the ESMP discussed below.
- Undertake further evaluation to confirm the effects associated with vehicle movements (as well as mobile and fixed plant) along the access road and on the windfarm site during construction and operation. This should consider severance, community safety, noise and air quality, and include any recommendations for mitigation, management and monitoring. The evaluation should take into account the position of sensitive receivers, the finalised alignment of the access road (including proposed diversions to avoid settlements), and wayleaves for any offsite work areas and associated activities, as well as the vehicle staging station at Laisamis. Any recommendations arising should be reported in a Road & Access Traffic Management Plan, which should form part of the ESMP.
- Better definition of the requirements for accommodation of construction workers, setting out the overall approach, location and management of the construction camps for workers (as appropriate for all of the developments). Any recommendations arising should be reported in an Accommodation Plan, which should form part of the ESMP.

4.2.2 In order to implement the findings of the ESIA in a manner which accords with the IFC Performance Standards, an LTWP Action Plan should be developed (See PS 1). The Plan should be dynamic and updated through the course of the project, and include the following:

- LTWP Environmental & Social Policy Statement.
- Organisational structure for environmental management of the Project, including provisions for training.
- Detailed ESMPs, produced by the designated Contractor approved by LTWP, for the construction and operational phases (taking into account the findings of this Review, the Employers and Lenders requirements, ESIAs, public consultation exercises and EHS Guidelines). Plans to be produced include:
    - Public Consultation and Disclosure Plan (including Community Engagement Plan and grievance mechanism);
    - Monitoring Plan;
    - Labour / Employment Plan;
    - Water Management Plan (arising from the clarification of the sustainable use of water, above);

- Road and Access Traffic Management Plan (arising from the clarification of effects on road access, above);
- Accommodation Plan (arising from the clarification of requirements for construction worker accommodation, above);
- Occupational Health and Safety Plan (including Emergency Preparedness and Response Plan) including for local communities;
- Waste Management Plan; and
- Resettlement Action Plans (where relevant) based upon the Resettlement Policy Framework.

The provisions for community engagement and grievance redress should be developed as a priority and audited by an independent expert in social development. An outline of the provisions for the Environmental and Social Action Plan, including the roles and responsibilities for implementation, is shown in Appendix 4.

Associated Transmission Line

4.2.3 There is an identified need for a RAP to be prepared to guide resettlement activities arising from the construction of the transmission line. LTWP will continue to collaborate with Ketraco, to the extent permitted by Ketraco, to achieve the outcomes that are consistent with the objectives of PS5 in this regard.

4.2.4 The recommendations relating to biodiversity (protection of Pesi Swamp and Malewa River) should be incorporated in an ESMP to ensure that these habitats are not adversely affected by the construction of the transmission line.

4.2.5 The transmission line should be designed taking into account locals concerns regarding areas of land which are of cultural value and this issue managed through the ESMP. Similarly, community engagement activities should be well documented though a PCDP both with regard to environmental effects as well as resettlement activities.

Overall Project

4.2.6 Interface is necessary with NEMA in order to comply with national legislation and manage outstanding issues going forward, this includes:

Windfarm and Road Upgrade

- Clarification (and fulfilment) of the regulatory requirements in relation to proposed design changes (increased number of turbines and road diversions);
- Approval of the ESIA for the road upgrade and securing the Environmental Licence; and
- Required interface with NEMA during construction and operation of the Project components including any specific requirements (or approvals) associated with the discharge of the License conditions.

Transmission Line

- Transfer of the EIA License, and responsibility for obtaining the conditions, for the transmission line from LTWP to Ketraco.

5 Conclusions

5.1.1 The LTWP Project will provide 300MW of renewable energy to the National grid of Kenya. The Project is located in a remote area of Kenya, and is divided into two components: development of a 365 turbine windfarm, and upgrade of approximately 200km of existing rural road. In parallel to the Project, Ketraco is developing a 400kV transmission line extending 428km from the LTWP windfarm to Suswa; it is considered an "associated facility" to the Project.

5.1.2 ESIAs have been completed for all three components. Government Approval has been granted for the windfarm and associated transmission line, and as at November 2010 is pending for the road upgrade[9].

5.1.3 Formal consultation with the local communities has been carried out as part of ESIA process. LTWP have maintained an informal process of stakeholder engagement, and have designed a CSRP for investment in the region. The issues and concerns raised by local communities have been documented and need to be considered in the Project design.

5.1.4 Key issues include expectations regarding:

- Job opportunities for locally affected communities;
- General socio-economic benefits, arising from the road opening up the area;
- Concern over "cultural contamination" and an increase in sexually transmitted infections arising from the potential influx of people from other areas/ tribes; and
- Concern for potential overuse of scare resources such as water and firewood.

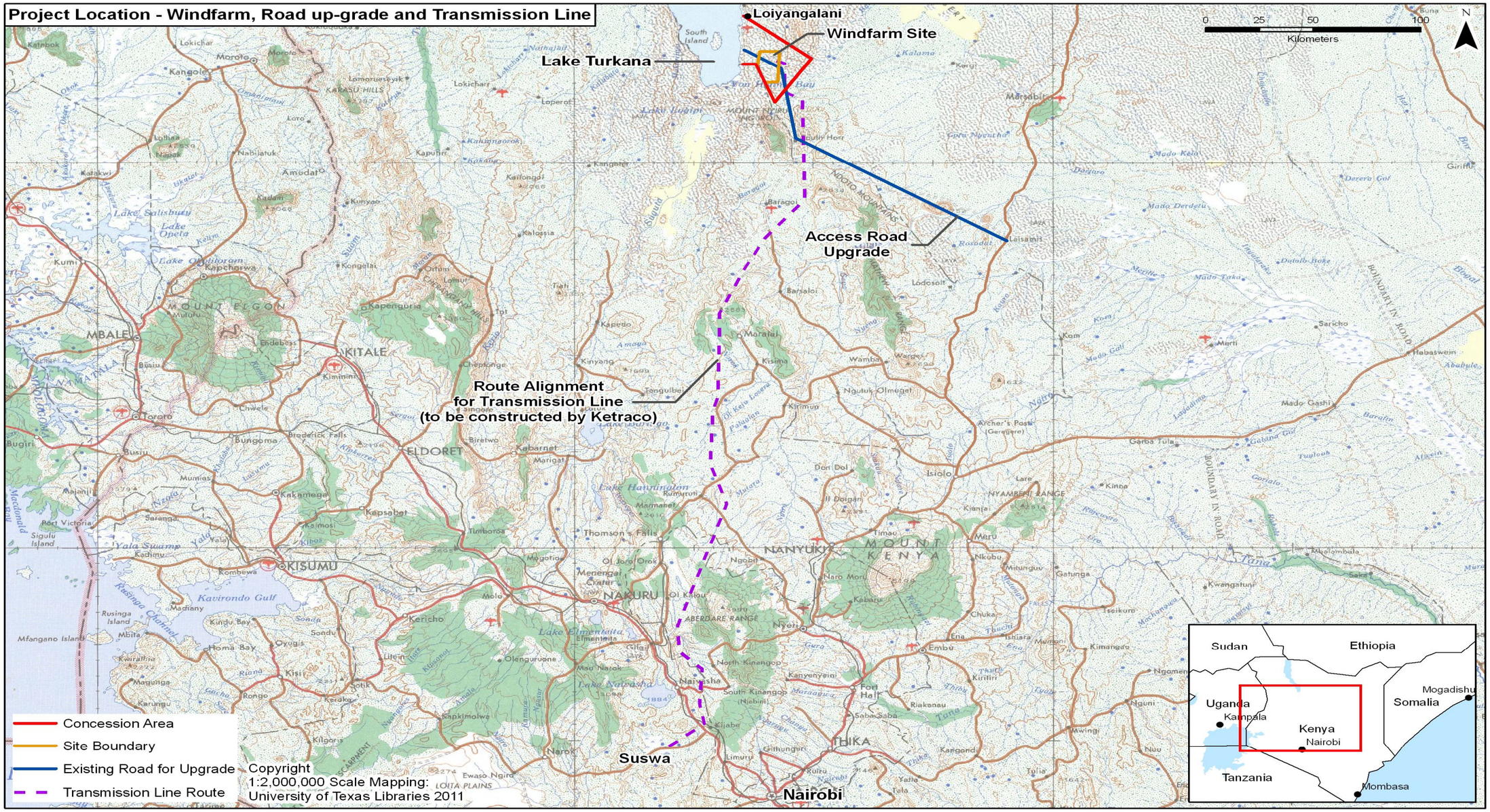
5.1.5 The Project area encompassing the windfarm site and the road to be upgraded is one of the more impoverished in the country, with a degree of aid dependency. There are also historical tensions between tribal groups and therefore an ability to work with the local communities and management of local expectations will be a key success factor.

5.1.6 Resettlement will be necessary for the associated transmission line; the number of affected people yet to be confirmed. LTWP will look to maintain an involvement in that process and it has been agreed that LTWP will prepare a RPF on behalf of Ketraco[10], to guide the process in accordance with PS5.

5.1.7 The Review of documentation and site visit confirms that the development is broadly in line with the requirements of the IFC Performance Standards. To comply with the requirements of the IFC PS, the findings of the ESIAs will need to be developed such that they can be incorporated into the detailed design, construction and operation of the project. Areas of the PS that are not specifically addressed within the ESIAs either simply need documentation or some further clarification. The scope of an Environmental and Social Action Plan for the Project has been identified to be taken forward in the design.

[9] The Road Upgrade ESIA has since been approved and a Licence was issued in January 2011.
[10] The RPF has since been drafted and provided to Ketraco in November 2010.

Appendix 1: Site Location Plan



Appendix 2: Selected Site Photographs

1) Access Road

Above and below: typical views of existing road condition.

Aerial view of South Horr: Proposed road diversion will avoid routing through the Township.

Access Road: Proposed location for vehicle staging station.

2) Windfarm Site

Typical view of windfarm site.

Sirima Mast: Data logging wind mast and security guard's camp.

People from the Turkana tribe collecting water.

3) Associated Transmission Line

Above and below: Typical pattern of settlements in the southern portion of the alignment.

Typical view of trust land in the northern portion of the alignment.

Appendix 3: Environmental Licences for the Windfarm Development and Associated Transmission Line Development

Application Reference No. PR/5964
Registration No: 0003866
For official use

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY (NEMA)

THE ENVIRONMENTAL MANAGEMENT AND CO-ORDINATION ACT
ENVIRONMENTAL IMPACT ASSESSMENT LICENCE

This is to certify that the Project Report/Environmental Impact Assessment Study Report received from .....LAKE TURKANA WIND POWER LIMITED..... (Name of individual/firm) .....P.O. BOX 63716-00619..... (Address) submitted to the National Environment Management Authority in accordance with the Environmental Impact Assessment & Audit Regulations regarding ..PROPOSED LAKE TURKANA WND POWER PROJECT... ..... (title of project) whose objective is to carry on .....CONSTRUCTION OF A POWER PLANT FOR..... .....THE GENERATION OF ELECTRICITY FROM WIND POWERED TURBINS..... .... (briefly describe purpose) located at .....SOUTH EAST OF L. TURKANA IN LAISAMIS DISTRICT..... ..... (locality and district) has been reviewed and a licence is hereby issued for implementation of the project, subject to attached conditions.

Dated this.....24TH.....day...JULY..... of 20...09.

Signature.....

(SEAL)

Director General
The National Environment Management Authority

CONDITIONS OF LICENCE

1. This licence is valid for a period of ..24...MONTHS.. (time within which the project should commence) from the date hereof.
2. The Director–General shall be notified of any transfer/variation/surrender of this licence.

Application Reference No. PR/5965
Registration No: 0003865
For official use

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY (NEMA)

THE ENVIRONMENTAL MANAGEMENT AND CO-ORDINATION ACT
ENVIRONMENTAL IMPACT ASSESSMENT LICENCE

This is to certify that the Project Report/Environmental Impact Assessment Study Report received from .....LAKE TURKANA WIND POWER LIMITED..... (Name of individual/firm) ....P.O BOX 63716-00619, NAIROBI..... (Address) submitted to the National Environment Management Authority in accordance with the Environmental Impact Assessment & Audit Regulations regarding ....PROPOSED 400KV POWER TRANSMISSION LINE..... (title of project) whose objective is to carry on .....CONSTRUCTION OF 400KM, 400KV TRANSMISSION LINE FROM THE LOIYANGANI TO SUSWA..... (briefly describe purpose) located at ....LOYANGALANI IN MARSABIT DISTRICT..... (locality and district) has been reviewed and a licence is hereby issued for implementation of the project, subject to attached conditions.

Dated this.....24TH.....day.....JULY..... of 2009...

Signature.....

(SEAL)

Director General
The National Environment Management Authority

CONDITIONS OF LICENCE

1. This licence is valid for a period of .24 MONTHS.. (time within which the project should commence) from the date hereof.
2. The Director–General shall be notified of any transfer/variation/surrender of this licence.

Appendix 4: Summary of Provisions for the Environmental & Social Action Plan

Ref	Relevant Section of Review	Measure and/or Corrective Action	Responsibility & (Resources)	Deliverable (determined in collaboration with LTWP	Deadline
1		**Environmental & Social Management System**			
1		**Social & Environmental Assessment**			
1.1	3.2,3.4	*Water* Complete water resource investigations to confirm that there is sufficient water for construction activities (including upgrading of the access road to site and site road network) and for operation of the windfarm and site village.	LTWP (Engineering Consultant)	▪ LTWP to commission Independent Water Report. ▪ Contractors to develop Water Management Plans (see 2.2 below).	Pre Project financial close
1.2	3.2, 3.4	*Other Potential Construction Related Environmental Impacts (to confirm no Resettlement required):* ▪ Confirm effects of vehicle & plant movements (i.e. noise, safety and dust impacts) along the road upgrade transportation route to the Project site and within the wind farm site. ▪ Confirm the location of any road diversions and staging areas along the transportation route. ▪ Confirm borrow areas/supply of concrete materials and evaluate effects of extraction and transport (including noise, safety and dust impact).	LTWP (Environmental Consultants)	▪ LTWP to commission addendum to Road EIA (required if route to be diverted & to further assess the impact of noise, safety and air quality along entire upgrade route). ▪ LTWP to commission a noise and air quality baseline survey on the Project site and along road upgrade route. ▪ LTWP to undertake further consultation with any onsite settlements. ▪ Contractors to develop Road & Access Traffic Management Plan (see 2.2 below).	Pre Project financial close

Ref	Relevant Section of Review	Measure and/or Corrective Action	Responsibility & (Resources)	Deliverable (determined in collaboration with LTWP	Deadline
1.3	3.2 ,3.3	*Workers Accommodation Camps* Define the scope, requirements as well as standards to be adopted for the position, design, and management of the workers accommodation camps on all components of the project.	LTWP	LTWP to set Employer's Requirements; Contractor(s) to further develop in an Accommodation Plan (as part of their ESMP, see below)	(see 2.2 below)
1.4	3.2	*Ornithological Survey* Complete 12 months ornithological survey at the windfarm site. Evaluate risks, and present any recommendations for inclusion in the ESMP.	LTWP (Scott Wilson Ornithological Consultants, NMK, RSPB)	Ornithological Survey Report. Progress reports issued throughout 12 month period.	September 2011 (not dependant on financial close).
2		**Management Programme, Organisational Capacity, Training, Community and Monitoring**			
2.1	3.2	*LTWP Environmental and Social Management* ▪ LTWP to develop an Environmental & Social Policy Statement, to reflect Employer's Requirements (cited in project contracts). ▪ LTWP to define roles & responsibilities for environmental and social management on the Project, including the interfaces between the project components (& Ketraco) as well as training needs. ▪ LTWP to appoint an Environmental Manager who will represent the Employer and liaise with each of the Contractor Environmental Officers, as well as monitor compliance with the Project Environmental Policy Statement/Employer's Requirements. ▪ LTWP to develop the following plans:	LTWP	▪ LTWP Policy Statement ▪ Define terms of reference and appoint Environmental Manager (post FC)	Pre Project financial close
2.1.1		Develop a Community Engagement Plan (including grievance mechanism)	LTWP (Social Development / Consultation Specialist)	LTWP CEP	Pre Project financial close
2.1.2		Develop a Compliance Monitoring Plan (for construction and operation, including impact monitoring). Monthly reporting plan to include compliance and exceedances with ESMP, employment statistics, incidents and near misses as well as LTAs.	LTWP	LTWP Compliance Monitoring Plan	Pre Project financial close

Ref	Relevant Section of Review	Measure and/or Corrective Action	Responsibility & (Resources)	Deliverable (determined in collaboration with LTWP	Deadline
2.1.3		Commission Resettlement Policy Framework to cover resettlement on all components of the Project, as well as transmission line; share with Ketraco	LTWP (Environmental Consultant)	LTWP RPF	Pre Project financial close
2.2		*Employers Requirements* Contractor to develop detailed ESMPs and mitigation Action Plans (as part of each Contractor or subcontractor's Project Execution Plan), for Construction and Operation phases of the project; taking into account, i) Review findings, ii) Investigations (1.1-1.4 above) iii) NEMA Conditions, iv) ESIA Reports & other project documents, v) Consultation findings, vi) IFC EHS Guidelines, vii) Chance Finds and Change Management procedures. Contractor to provide a copy of their company Environmental and Social Policy Statement and prepare and provide, to the Employer, project component specific ESMPs, which should include the following Sub-Plans, where applicable: ▪ Labour / Employment Plan ▪ Water Management Plan (see 1.1 above) ▪ Road & Access Traffic Management Plan (see 1.2 above), to include breakdown and repair procedures, fuel storage and filling locations and procedures, site laydown areas, staging/rest/stop-over requirements and procedures as well as pollution spill and contingency plan. ▪ Accommodation Plan (see 1.3 above), to include sanitation. ▪ Occupational Health & Safety Plan (Including induction course, EPRP) for local communities/nearest receptors ▪ Waste Management Plan ▪ Change Management and Chance Find Plan ▪ Security Management Plan Contractors and their subcontractors will each appoint a dedicated qualified Environmental Health and Safety Officer to liaise with the Employers Environmental Manager (or designate) to oversee and monitor the Environmental Social Health and Safety aspects and compliance management plans associated with their specific work component of the Project. Contractor(s) and their subcontractors will develop a monthly Environmental & Social Monitoring Report.	LTWP Contractors	Detailed Contractor ESMP(s), with applicable sub-plans.	ESMP(s), & associated sub-plans to be approved by LTWP pre financial close.
3		**National regulations**			

Ref	Relevant Section of Review	Measure and/or Corrective Action	Responsibility & (Resources)	Deliverable (determined in collaboration with LTWP	Deadline
3.1	3.2	Hold discussions with NEMA in order to: ▪ Determine any requirements for formal variations to existing windfarm Site EIA Licence ▪ Confirm NEMA's expectations for impact monitoring and reporting during construction and operation.	LTWP		Pre Project financial close
3.2	3.2	Transfer transmission line ESIA licence (and responsibility for obtaining associated conditions) to Ketraco.	LTWP		Pre Project financial close
3.3	3.2	Obtain licence for road EIA; conduct and submit EIA addendum.	LTWP		Pre Project financial close C
4		**CSRP**			
4.1	3.2	Make contact with ETC East Africa, authors of the 2009 CSRP, to accelerate key aspects of the programme (for construction phase).	LTWP		Pre Project financial close
5		**CDM**			
5.1	3.4	Continue to work with Carbon Africa to ensure any environmental and social specific matters raised by carbon credit validator (SGS) have been resolved.	LTWP		Pre Project financial close
6		**Recommendations Specific to Associated Facility: Transmission Line**			
6.1	3.4, 3.5	Develop ESMP(s), as above, and incorporate the following: ▪ ESIA identifies that the low frequency noise emissions emanate from the power lines and transformer buildings; this should be accommodated in the design process through appropriate set-back distances. ▪ ESIA states that SF_6 will be used in the electrical switchgear. The management of SF_6 as an insulator should be reviewed in the design process against current Good International Industry Practice. ▪ Make provisions for management of pesticides if used during bush clearance. ▪ Design should include measures to prevent attempts at illegal connections	Ketraco	LTWP to circulate this Review report to Ketraco.	Once finalised.

Ref	Relevant Section of Review	Measure and/or Corrective Action	Responsibility & (Resources)	Deliverable (determined in collaboration with LTWP	Deadline
		(which can result in fires or electrocutions) and exposure to electrical and magnetic fields. ▪ Management of ecological resources, e.g. incorporate marker buoys on cables over Pesi Swamp, planting of new native woodland to compensate loss. ▪ Mitigate for noise and air impacts during bush clearance and construction. ▪ Stipulate no hunting of bush-meat by Contractors' staff.			