

*Economic Community
Of West African States*



*Communauté Economique
Des Etats de l'Afrique de l'Ouest*

WEST AFRICAN POWER POOL
SYSTEME D'ECHANGES D'ENERGIE ELECTRIQUE OUEST AFRICAIN

General Secretariat / Secrétariat Général



225 kV WAPP CÔTE D'IVOIRE - LIBERIA
INTERCONNECTION REINFORCEMENT PROJECT

***TERMS OF REFERENCE FOR LINE ROUTE AND
ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) STUDY***

August 2020

List of Abbreviations

AFLS	Automatic Frequency Load Shedding
CC	Combined Cycle
CI-ENERGIES	Côte d'Ivoire Énergies
ECOWAS	Economic Community of West African States
EIS	Environmental Impact Statement
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
FCR	Frequency Control Reserve
FOTS	Fibre Optical Transmission System
FSD	Forest Services Division
LEC	Liberia Electricity Corporation
MALS	Manual Activated Load Shedding
MDR	Momentary Disturbance Reserve
OMVG	Gambia River Basin Development Organisation
OPGW	Optical Ground Wire
RAP	Resettlement Action Plan
ROW	Right-Of-Way
SCADA	Supervisory Control and Data Acquisition Systems
TOR	Terms Of Reference
WAPP	West African Power Pool

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WEST AFRICAN POWER POOL (WAPP) SECRETARIAT

225 kV WAPP CÔTE D'IVOIRE – LIBERIA INTERCONNECTION REINFORCEMENT PROJECT

TERMS OF REFERENCE FOR LINE ROUTE AND
ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT STUDY

1.0 INTRODUCTION

1.1. Objective of WAPP

The Objective of the WAPP is to establish a regional electricity market in West Africa through the judicious development and realization of key priority infrastructure that would permit the accessibility to economic energy resources, to all member states of the ECOWAS.

In order to further advance the implementation of the priority projects of the West African Power Pool (WAPP), the WAPP Secretariat and WAPP Members are developing the following priority projects:

- 225 kV Côte d'Ivoire – Liberia – Sierra Leone – Guinea Interconnection (CLSG) Project;
- 225 kV Guinea – Mali Interconnection Project;
- 225 kV OMVG Interconnection Project involving Senegal, The Gambia, Guinea Bissau and Guinea
- 225 kV Tiboto Hydropower Project between Côte d'Ivoire and Liberia.

The WAPP Secretariat on behalf of Côte d'Ivoire Énergies (CI-ENERGIES) and the Liberia Electricity Corporation (LEC) intends to procure the services of an International Consulting firm to undertake the following activities among others:

- Line route study and production of maps, plan and profile drawings
- Environmental and Social Impact Assessment (ESIA) of the project and preparation of Environmental Impact Statement, Resettlement Action Plan (RAP), and Environmental and Social Management Plan (ESMP).

1.2. Objective of the Proposed Project

The ECOWAS Master Plan for the Development of Regional Power Generation and Transmission Infrastructure 2019 - 2033 adopted by the ECOWAS Heads of State and Government in 2018 through Supplementary Act A/SA.4/12/18 identifies the key priority projects that need to be implemented to ensure stable integration of the national electricity networks in the ECOWAS Region and facilitate optimal power exchanges and trading among the Member States. Prominent among the infrastructure projects to be developed is the 225 kV

WAPP Côte d'Ivoire – Liberia Interconnection Reinforcement Project, which seeks to establish a robust transmission link from San Pedro in Côte d'Ivoire to Buchanan in Liberia passing through Tiboto in Côte d'Ivoire as well as Greenville in Liberia.

In the eastern part of the ECOWAS region, the WAPP has been implementing its Coastal Transmission Backbone that spans from Nigeria to Côte d'Ivoire and has as objective among others, to provide adequate transmission capacity for the exchange of power among these coastal states and beyond. In the western part of the ECOWAS region, the WAPP is also implementing the 225 kV CLSG Interconnection Project as well as the 225 kV OMVG Interconnection Project involving Senegal, The Gambia, Guinea Bissau and Guinea. Likewise, these projects shall aim to among others, provide adequate transmission capacity for the exchange of power among these ECOWAS Member States and beyond. At the regional level, a key but missing junction of these above-mentioned projects is a transmission link between Côte d'Ivoire and Liberia to enhance power exchanges from the east to west in the ECOWAS sub-region and vice-versa.

In addition, the development of the 220 MW Tiboto Hydropower Project, sited on the Cavally River between Côte d'Ivoire and Liberia, has been started by the Government of Côte d'Ivoire and it is expected that a portion of the power output shall be for the benefit of Liberia. Required to evacuate the expected power output is a high voltage transmission line from Tiboto to San Pedro in Côte d'Ivoire as well as to Buchanan in Liberia where it shall intersect with the 225 kV Côte d'Ivoire – Liberia – Sierra Leone – Guinea Interconnection Project under construction.

Furthermore, this interconnection line shall also increase reliability (n-1) for power supply to the 225 kV CLSG System given that it shall represent an alternate path for exportations from Côte d'Ivoire and beyond. With respect to the WAPP interconnected system and with the expected full deployment of the regional electricity market in West Africa by 2020/21, the establishment of secure and reliable transmission corridors to support market operations becomes paramount. In this regard and in order to increase the reliability and stability of power exchanges among the ECOWAS Member States of Côte d'Ivoire, Liberia and beyond, the ECOWAS Master Plan has re-affirmed as priority the implementation of an interconnection line among these countries that shall also serve to render more optimal the power systems of the concerned national power utilities.

Moreover, the region's renewed drive to significantly augment the portion of variable Renewables (Solar, Wind) in the regional energy mix dictates that more stable and reliable transmission infrastructure connected to hydropower assets is needed to provide the necessary balancing support. In this regard, the 225 kV WAPP Côte d'Ivoire – Liberia Interconnection Reinforcement Project coupled with the 225 kV Guinea – Mali Interconnection Project and the 225 kV CLSG Interconnection Project, both currently under implementation, shall provide key linkages between the abundant hydropower resources under development in Côte d'Ivoire, Liberia as well as Guinea and the abundant solar power resources in Mali and Burkina thereby creating opportunity for an enhanced development of these variable energy resources. This shall also provide mitigation to the intermittency challenge associated with variable renewable generation.

The WAPP Secretariat, CI-ENERGIES and LEC therefore intend to undertake a project that shall comprise the construction of a 225 kV double circuit high voltage transmission line from San Pedro in Côte d'Ivoire to Buchanan in Liberia passing through Tiboto in Côte d'Ivoire as well as Greenville in Liberia with associated high voltage substations. This project, which would

greatly facilitate the power exchanges among the countries in the West Africa sub-region, is known as the **225 kV WAPP Côte d'Ivoire – Liberia Interconnection Reinforcement Project**.

As part of social mitigation measures and to increase acceptability, the project also envisages to provide electricity to all eligible villages/towns/communities that are 5-km on each side of the line corridor.

The project, which shall be executed in Côte d'Ivoire and Liberia, shall indicatively result in the following among others:

- Construction of approximately 650 km of 225 kV high voltage double circuit transmission line;
- Extension of/or the construction of a new high voltage substation at San Pedro (Côte d'Ivoire) or environ;
- Extension of/or the construction of a new high voltage substation at Tiboto (Côte d'Ivoire) or environ;
- Extension of/or the construction of a new high voltage substation at Greenville (Liberia) or environ;
- Extension of/or the construction of a new high voltage substation at Buchanan (Liberia) or environ;
- Installation of SCADA and fibre optic systems (OPGW);
- Electrification of eligible communities/villages along the line route of the project and around substations;
- Installation of compensation and synchronization equipment if required;
- Reinforcements of the networks of the involved WAPP Member Utilities - CI-ENERGIES (Cote d'Ivoire) and LEC (Liberia) if necessary.

The project is at the conceptualization stage and requires a Line Route and ESIA Study to be carried out in line with national requirements and the latest relevant Guidelines of Funding Agencies such as the World Bank, African Development Bank, Agence Française de Développement, European Union Directives, and the KfW. In cases of contradiction, the most stringent requirements shall apply.

The Consultant shall work very closely with the WAPP Secretariat, CI-ENERGIES and LEC to assess the suitability of the existing substations to accommodate the project, determine the optimal locations for the new substations and an optimal routing for the Transmission Line. All work related to the identification and selection of the line route and substations as well as the other parts of the scope of work shall be deemed to have been included in the Technical and Financial Proposals of the Consultant.

The WAPP Secretariat shall prepare a Feasibility Study and Preparation of Bidding Documents separately by a different Consultant, but in parallel with the Line Route and Environmental and Social Impact Assessment Study. Close collaboration between the Consultants implementing the two (2) studies is required for the conduct of the study given that among others, the Report on the Provisional Line Route shall be an input into the Feasibility Study.

2. CONTEXT OF THE STUDY

2.1. Côte d'Ivoire Energies (CI-ENERGIES)

The company Côte d'Ivoire Energies, CI-ENERGIES, was created in 2011 with the name “Société des Énergies de Côte d'Ivoire” through the Decree N° 2011- 472 of December 21st, 2011 with the mission, in Côte d'Ivoire and abroad, to ensure the monitoring and management of power transit as well as the project management tasks returning to the State as concessioning authority.

Historically, ‘Société Energie Electrique de Côte d'Ivoire (EECI) was a state-owned utility managing the whole of power system, comprising power generation, transmission and distribution until 1990.

In October 1990, the State of Côte d'Ivoire carried out a first reform of the electricity sector, reducing the missions of the EECI to the management of the service entrusted and to the development of the electricity sector then, created the ‘Compagnie Ivoirienne d'Electricité’ (CIE), a private utility to which the State awarded the operation of the power system (this concession runs until 2020).

In December 1998, the Government of Côte d'Ivoire carried out a second reform of the electricity sector which marked the termination of the EECI and its replacement by three (3) State-owned utilities:

- The National Regulatory Authority of the Electricity Sector (ANARE), responsible for monitoring the Operators of the sector, arbitration of disputes and the protection of the interests of the electricity consumer;
- The ‘Société de Gestion du Patrimoine du secteur de l'Electricité (SOGPE), responsible for managing the sector's assets, managing financial flows and preparing the consolidated accounts of the sector;
- The ‘Société d'Opération Ivoirienne d'Electricité (SOPIE), responsible for monitoring power flows, studies and planning, as well as the project management of the investment projects returning to the State, in terms of renewal and extension of transmission and rural electrification networks.

In December 2011, the third reform saw the establishment of CI-ENERGIES to which the State entrusted the missions and attributions of SOGPE and SOPIE. Côte d'Ivoire's transmission network consisted in 2016 of 2,469 km of 225 kV overhead lines, 2,664 km of 90 kV of overhead and underground lines, 15 substations of 225 kV and 33 substations of 90 kV.

Côte d'Ivoire has been interconnected to Ghana since 1983 by the 225 kV Abobo - Prestea line of 210 km; to Burkina Faso since 2001 with the 225 kV Ferkessedougou-Kodeni line and to Mali since 2012 with the 225 kV Ferkessedougou – Sikasso line of 237 km. Côte d'Ivoire is also involved in another key WAPP Project, which envisages a 225 kV interconnection among Côte d'Ivoire, Liberia, Sierra Leone and Guinea with the construction of a line of more than 1,000 km between Man's 225 kV substations in Côte d'Ivoire and Linsan in Guinea.

2.2. Liberia Electricity Corporation (LEC)

The Liberia electricity sector has recovered from near total destruction in the aftermath of the war. Electricity services have been re-established in key areas of Monrovia; the national utility, the Liberia Electricity Corporation (LEC), had 45,714 customers as of November 2016, up from 2,469 in 2010. With the support of international donors, including the World Bank, the country has embarked on access projects to expand the national grid in Monrovia and along key economic corridors and to use decentralized systems in remote areas of the country. Peak demand in the national grid increased from four MW in 2010 to 19.6 MW in February 2017, and 74 MW of generation were in place in as of December 2016 (14 MW diesel, 38 MW heavy fuel oil, 22 MW hydro).

While significant progress has been made, Liberia still has one of the lowest electrification rates in Africa, with 4.9 percent coverage nationally and 20 percent in Monrovia. Liberia also has an extremely high tariff at 39 US cents/kwh as of Feb. 1, 2017, even after the reduction of the tariff from 49-52 US cents/kwh following the introduction of lower cost electricity from the Mount Coffee Hydropower Plant and 38 MW of HFO-based plants in December 2016. Electricity remains unavailable and unaffordable for most Liberians. Poor households rely on informal and expensive ad hoc providers or on traditional energy sources (kerosene and battery powered lamps, etc.). The high tariff also imposes a severe burden on businesses, reducing their competitiveness. There is a large amount of repressed demand among mines and agricultural/commercial enterprises that rely on expensive diesel based self-generation.

Within the framework of the WAPP, the Grand Gedeh, Maryland and Nimba counties in Liberia have access to electricity through medium voltage cross-border connections with Côte d'Ivoire. The WAPP also prepared and mobilized the financing for the rehabilitation/reconstruction of the Mount Coffee Hydropower Project that was commissioned in 2017 with a yield of 88 MW. The WAPP is also working with Liberia to prepare an optimal development plan for the St. Paul River and shall subsequently prepare bankable pre-investment studies for the key projects that shall emanate from the optimal development plan. Liberia is also involved in another key WAPP Project, which envisages a 225 kV interconnection among Côte d'Ivoire, Liberia, Sierra Leone and Guinea with the construction of a line of more than 1,000 km between Man's 225 kV substations in Côte d'Ivoire and Linsan in Guinea.

3. OBJECTIVE OF THE TERMS OF REFERENCE (TOR)

The Objective of this TOR is to engage the services of a qualified and experienced International Consulting firm to carry out a Line Route Study, selection of substation sites, and Environmental and Social Impact Assessment for the 225 kV Côte d'Ivoire – Liberia Interconnection Reinforcement Project.

4. SCOPE OF SERVICES

The Consultant shall undertake the Studies and provide the required services in accordance with internationally recognized practices for Consultancy Services. The Consultant shall also ensure compliance with international standards, applicable laws and regulations in the involved countries

(Côte d’Ivoire and Liberia), International Agreements on environment ratified by the countries involved in the Project as well as Funding Agencies such as the World Bank (WB), African Development Bank (AfDB), Agence Francaise de Developpement (AFD), KfW and European Union (EU) Guidelines. As such, it shall be assumed that the Consultant has made in-depth investigations of these requirements prior to submitting Technical and Financial Proposals.

Should there be any contradiction between the applicable laws, regulations and directives, the more stringent guidelines of the afore-mentioned institutions shall take precedence.

The Consultant shall keep accurate and systematic records and accounts in respect of the Services in such form and detail as is customary and as shall be sufficient to establish accurately that the costs and expenditures have been duly incurred.

The Consultant shall ensure the timely submission of the Report on the Provisional Line Route as this shall be transmitted to the Consultant implementing the Feasibility Study and Preparation of Bidding Documents. The two Consultants shall collaborate closely in the execution of their assignments and it is expected that the Consultant preparing the Line Route Study shall deliver a presentation on the Report on the Provisional Line Route during the kickoff meeting of the Feasibility Study.

The work program for the Consultant shall be organised as follows:

- Scoping and study of an optimal Line Route;
- Assessment of Environmental and Social Impacts
- Preparation of Environmental and Social Management Plan
- Preparation of Resettlement Action Plan;
- Detailed Survey of Line Route
- Public Consultations throughout the entire study
- Public sensitization at conclusion of study
- Training

4.1. Line Route Study

The scope of services by the Consultant shall include, but not be limited to the following:

- Study of proposed line route
- Detailed survey and profiling of line route
- Preparation of maps and drawings.
- Close collaboration with Consultant implementing the Feasibility Study in relation to the Line Route.

4.1.1. Study of Proposed Line Corridor / Preliminary Survey

The assignment to be carried out by the Consultant is to study and establish a “Right-of-Way” (ROW) for the entire length of line in accordance with ROW requirements and regulations of the various countries and Funding Agencies. It should be noted that, subject to these regulations,

the width of the ROW and minimum distance of the ROW from the center of any road are as follows:

<i>Country</i>	<i>Width of ROW</i>	<i>Min. distance of transmission line From road center</i>
• Cote d'Ivoire	40 meters	50 meters
• Liberia	40 meters	50 meters

The determination of an optimal provisional line route shall require on-the-ground investigations by the Consultant on the entire line route. In selecting the line route, the following, amongst others, should be considered:

- Minimization of the impact on the physical and human environment (villages, towns, settlements, special-area planning, trees, protected and sacred forests, RAMSAR sites, etc. – consideration of Technical, economic, environmental, cultural and social issues.)
- Avoidance of areas with large transversal slope, or areas narrower than the length of the maximum possible span, as provided in Section 4.1.3 and the appendix to this TOR.
- Avoidance of inaccessible zones, mountainous areas, protected areas and ecologically sensitive zones
- Minimization of the cost of construction and maintenance of the line (optimization of the length, number of deviations and accessibility of the line, etc.)
- Compliance with the local, regional and national development master plans of the built-up areas - Areas marked for future development has to be obtained from the relevant Town and Country Planning Department Office responsible for the area.
- Guidance from CI-ENERGIES and LEC as appropriate regarding routing and planning standards in Cote d'Ivoire and Liberia respectively.

The Consultant shall propose and examine alternatives for the Line Route and make a justified recommendation of an optimal line route that minimizes Environmental and Social Impacts and conform to National, International and Funding Agencies' Guidelines. The justification for the recommended line route should contain among others, an evaluation of the advantages and disadvantages of each alternative of line route examined. The proposed optimal line route must avoid all environmental and social sensitive areas including protected forests, cultural and heritage sites, and RAMSAR sites. In this regard, the Consultant shall work very closely with designated experts from each national utility. The Consultant shall also carry out comprehensive public consultations in determining the line route and shall ensure that these consultations are documented in signed Minutes of Meeting with list of participants or similar.

As part of the on-the-ground investigations, marker pillars of minimum height 1.5 meters bearing among others, the label “WAPP”, shall be installed by the Consultant at all proposed angle points of the provisional line route. The locations of these marker pillars shall also coincide with the centerline of the provisional line route. **These marker pillars shall be inspected during a field visit organized by the Consultant as part of the adoption of the Report on the provisional line route.** In addition a detailed description of the selected corridor, **including photographs and GPS coordinates (including the locations of the marker pillars)**, shall be provided by the Consultant depicting the location of all natural obstacles such as relief features and artificial obstacles as well as all other useful details. The description shall include but not be

limited to the location of the various obstacles listed below which should be featured in the drawings/maps:

- a) Man-made structures or obstacles (all types of residential and non-residential structures such as roads, streets, schools, dams, hospitals, offices, commercial buildings, government buildings,
- b) Infrastructure (existing power transmission and distribution lines, existing telephone lines, railroad, footpath and highway crossings, microwave towers, stream crossings etc.)
- c) Physical features (rivers, streams, mountains, valleys, swamps, farmlands, forest reserves etc.)

The description on the corridor shall in particular provide an exhaustive list of all the local administration areas, provinces, districts and villages traversed by the project. For each of these, the following shall be identified with the support of GPS coordinates:

- Boundaries of allocated zones;
- Demarcation of farmlands and allocated properties
- Hunting Reserves and Forest Reserves
- Cultural, Religious and Heritage Sites including Cemeteries
- Markets and areas with high population densities in non-allocated areas

The Consultant shall note that all of the above shall be contained in the draft report on the provisional line route.

The Consultant shall note that the Line route shall be considered as final only after the detailed ESIA has been conducted, adopted by the countries and Funding Agencies and approved by the national Agencies in charge of Environmental Protection through the issuance of Permits. The Consultant shall abide by all procedures in force in Liberia including the obtention of accreditation from EPA and shall account for all costs that shall be incurred as part of its offer.

4.1.2. Corridor Mapping

During the study for the selection of the corridor and as part of the Line Route Study Report, the corridor shall be mapped with GPS and in XYZ coordinate system and the XYZ data of the corridor submitted in an appropriate spreadsheet format acceptable to the WAPP Secretariat, CI-ENERGIES and LEC. Following the selection of a provisional line route, a list of station numbers, XYZ and GPS coordinates of all traverse points, line angles etc. along the proposed line route shall be submitted in a format acceptable to the WAPP Secretariat and the two concerned utilities. The Consultant shall bear in mind that the information to be submitted shall be used for further detailed survey, subsequent tower spotting on the line and the estimation of medium and low voltage networks. At the end of the study a report on the corridor and a line route map shall be submitted for provisional adoption. The Consultant shall note that the line route could be further modified depending on the outcome of the ESIA study. The Consultant shall also note that the Line route shall be considered as final only after the detailed ESIA has been conducted, adopted by the countries and Funding Agencies and approved by the national Agencies in charge of Environmental Protection through the issuance of Permits.

The Consultant shall also note that a similar Report shall be prepared for the provisional line

routes for the medium voltage networks in relation to the electrification of villages/towns/communities along the line route and around the substations.

4.1.3. Detailed Survey and Profiling of Line Route

The detailed survey shall be conducted upon finalization of the line route and the approval of the ESIA by the national agencies in charge of environmental protection and Funding Agencies. The survey shall be conducted using appropriate survey methods and in accordance with standards in the various countries. The Consultant shall abide by all procedures in force in Liberia including the obtention of accreditation from EPA and shall account for all costs that shall be incurred as part of its offer.

The Works shall involve, but not be limited, to the following:

- The conduct of lines surveys and site picketing with 0.15 m diameter cylindrical steel concrete pillars of a height of 1.5 m sited on concrete blocks of $40 \times 40 \times 25$ at the deviation points and landmarks. These landmarks shall be positioned in a ratio of two (2) per kilometer in rural areas. On the other hand, in urban agglomerations, they shall be positioned in a closer way, that is a distance of 50 meters between two consecutive pillars to allow for easier spotting of the line route. The tips of all the pillars shall be painted with red oil paint to allow easy spotting. The pillars shall be subject to crushing tests and shall be considered as acceptable only if they withstand 20 Mpa after 28 days. The aggregates used for the pillars shall contain 350 kg of Cement per m³ with good quality sand and quartz. These tests shall be performed in the presence of representatives from the concerned utilities.
- Leveling of the centerline at 30-m interval and at closer intervals on slopes to define mountain slopes and valleys
- Detailing of roads/lanes, buildings, water bodies and other visible landmarks.
- Drafting and preparation of layout maps as well as plans and profiles drawings.

In carrying out the detail survey, the Consultant shall take the following into account:

- The number of angle caps shall be minimized. Angles should be placed preferably on level ground at relatively high elevation: they should not be at mountains tops, steep places or areas that are at lower elevations in comparison with the profile on the two sides. The angle points must be selected appropriately and pegged. Boundary pillars shall be erected to enable effective checking and vetting of the surveys and drawings. They shall be in accordance with specifications provided by the utilities and shall clearly bear the mention “WAPP”.
- A uniform interval not exceeding 500 meters shall be maintained between adjoining pillars except in the case of a significant terrain slope, which may hinder visibility between pillars.
- In many mountainous places, the slope of terrain in direction perpendicular to line axis is important and may cause intolerable reductions of the clearance from conductors to ground, if not taken into account in the survey. It is therefore necessary to survey and profile a parallel route from the line center-line, under the external conductor, on the uphill side, whenever the terrain slope perpendicular to line axis exceeds 5%. In case the transversal slope exceeds 50% in particular points, some profile stretches in direction perpendicular to line axis should also be surveyed, with a length of about 40 m on uphill side.
- The description of the ground shall be done whether pasture, woodlands, arable, etc. with

special reference to such items as marshy, soft ground or rock and other relevant information relating to soil instability.

- An altitude data shall be the basis for all levels and such levels shall be shown at 2-m vertical intervals and at the beginning and end of each section; levels shall be shown of each section and at every obstruction or geographical feature.

In carrying the detailed survey, the Consultant shall systematically mark all affected properties (trees, buildings, compensable assets) within the adopted line route corridor. This exercise shall be conducted in close collaboration with the national utilities and their requirements.

A detailed survey report shall be presented to the WAPP Secretariat, CI-ENERGIES and LEC. The report should include, among others:

- Information to facilitate recovery or re-positioning of angle points in the event of the pillar being destroyed, either by witness pillars or something else.
- Detailed list of reference pillars established and their locations during the traverse and how they were established.
- The relative and cumulated distance from one point to the other
- Types of instruments used and their accuracies, standard deviations and variance,
- Accuracy of levels
- Field books, computations sheets and all related documentations in hard and soft copies.
- Information identifying the nearest access roads to each section of the line.
- Photographs showing the nature of the intervening terrain between pillars and confirming the absence of construction (buildings, etc.) along the route.
- A complete listing of all properties/assets (including trees, buildings) within the ROW that shall be compensated. The listing shall conform to the systematic marking made by the Consultant on the assets on site.

The Consultant shall note that the validation of the Detail Survey Report in each country shall include a site visit with the concerned utility to verify among others, the pillaring of the line route. The outcomes of the site visit shall be reflected in signed Minutes of Meeting.

4.1.4. Preparation of Maps and Drawings

The preparation of maps and drawings shall be in compliance with the requirements of CI-ENERGIES and LEC shall be GIS-compatible.

4.1.4.1. Line Route and Corridor

The line route shall be drafted as follows:

- A general map showing the line route/right-of-way on topographical sheets on a scale of 1:50,000 and 1:2,500 at heavily inhabited areas
- A Key Map showing the line route, in 4-km sections, on topographical sheets on a 1:50,000 scale.

As part of all versions and quantities of the Line Route Study Report (Draft, Provisional, Final), a map of the entire line route fitted in one (1#) A0 size showing among others,

relief features, the key structures indicated above with their GPS coordinates and those of the route and substations, shall be submitted.

In addition, all maps shall be GIS-compatible and submitted in digital form with all required information necessary to incorporate into the WAPP Geographical Information System. These could include but not limited to Mxd files, Shape Files, Rasterdata or similar.

4.1.4.2. Plan and Profile Drawings

Drafting of the survey works should be in the latest stable version of AutoCAD and PLS-CADD. The plan shall be in the following scale:

- Plan = 1:5000
- Profile: *Horizontal* = 1:5000
- Vertical* = 1:500

Each sheet should contain not more than 4 km of line route and shall be drawn from left to right on the sheet in the scales indicated. Each sheet should show the plot (with dotted line) of the supplementary profile under external conductor where appreciable slopes are present.

Centesimal degrees should be preferred, to facilitate calculations. Degrees (°), minutes (′) and seconds (″) should be indicated. All angles between two adjacent straight-line sections should be indicated.

In general, all features such as hedges, fences, ditches, roads, railways, rivers, streams, canals, buildings, huts and all power and telecommunication lines shall be shown. Details of all crossings, e.g. power lines, major pipelines, phone lines, canals, roads, etc. any other pertinent comments, observations, landmarks, etc., that may be deemed necessary for the future intended use of the drawing are required.

The following details on power line crossings are specifically required:

- Rated voltage, configuration of conductors (triangular, flat, etc.);
- Level above ground at point of crossing;
- Height of top conductor/shield wire(s) at crossing point;
- Distances of crossing point to supporting towers/poles;
- Angle of crossing;
- Ambient temperature and the time intervals measurements were taken.

In particular, the plan and profile shall detail out/show:

4.1.4.2.1. Plan

- High and low voltage power lines crossings
- Telecommunication lines or mast
- All crossings including but not limited to road crossings, footpaths, tracks, canal

roads, railways, etc.

- Relief features including but not limited to swamps, rivers, streams, hedges fences
- Angles between two adjacent straight-line sections
- Details of obstacles including but not limited to houses, roads, pipelines, bridges, surface nature and the like to a width of 30 m on both sides of the centreline

4.1.4.2.2. Profile

- Details of all crossings, e.g. power lines, major pipelines, phone lines, canals, roads, etc.
- Where ground slope across the line route exceeds 5%, the level of the ground left and right of the center-line shall be recorded at offset distance of 6.0 m. The offset levels shall be indicated on the profile as broken and/or chained dotted lines.
- The profile shall indicate all changes in level and deviation of 300 mm or more along the center-line of the route.
- All features such as hedges, fences, ditches, roads, railways, rivers, streams, canals, buildings, huts and all power and telecommunication lines shall be shown.
- Ordnance datum shall be the basis for all levels and the level shall be shown at 2-m vertical intervals and at the beginning and end of each section; levels shall be shown of each section and at every obstruction or geographical feature.
- The visual nature of the ground shall be noted whether pasture, woodlands, arable, etc, with special reference to such items as marshy, soft ground or rock and other relevant information such as soil instability.
- In general, the transversal slopes are not provided in the profiles. However, a supplementary profile under the external conductor should be surveyed and plotted (with dotted line), where appreciable slopes are present.
- In many mountainous places, the slope of terrain in direction perpendicular to line axis is important and may cause intolerable reductions of the clearance from conductors to ground, if not taken into account in the survey. It is therefore necessary to survey an additional profile on a parallel route at a distance of 6m from the line center-line on the uphill side, whenever the terrain slope perpendicular to line axis exceeds 5%. In case the transversal slope exceeds 50% in particular points, some profile stretches in direction perpendicular to line axis should also be surveyed, with a length of about 40 m on uphill side.

4.2. Substation Site Selection

The scope of services by the Consultant shall include, but not be limited to the following:

- Identification of substation sites
- Detailed survey of substation sites
- Preparation of topographical drawings.

4.2.1. Identification and Study of Substations Sites

The assignment to be carried out by the Consultant is to identify and study the substation sites in accordance with the requirements and regulations of the concerned utilities and

various countries. The outcome of these activities shall be contained in the Line Route Study Report.

The Consultant shall work very closely with the WAPP Secretariat, CI-ENERGIES and LEC to determine appropriate locations for the terminal substations. Ideally, new substation locations should not be less than 500 mts by 500 mts but this shall be subject to confirmation by each concerned utility. All work related to the selection of substations shall be deemed to have been included in the Technical and Financial Proposals of the Consultant

In selecting the substation sites, the following, amongst others, should be considered:

- Minimization of the impact on the physical and human environment (villages, towns, settlements, special-area planning, trees, protected and sacred forests, RAMSAR sites, etc – consideration of Technical, economic, environmental, cultural and social issues.)
- Avoidance of areas with large transversal slope;
- Avoidance of inaccessible zones, mountainous areas, protected areas and ecologically sensitive zones
- Minimization of the cost of construction and maintenance of the substation (accessibility etc.)
- Compliance with the local, regional and national development master plans of the built-up areas - Areas marked for future development has to be obtained from the relevant Town and Country Planning Department Office responsible for the area.
- Guidance from CI-ENERGIES and LEC as appropriate regarding routing and planning standards in Cote d'Ivoire and Liberia respectively.

The Consultant shall propose and examine alternatives for the Substations and make a justified recommendation on optimal sites that minimizes Environmental and Social Impacts and conform to National, International and Funding Agencies' Guidelines. The justification for the recommended sites should contain among others, an evaluation of the advantages and disadvantages of each alternative of site examined. The proposed optimal site must avoid all environmental and social sensitive areas including protected forests, cultural and heritage sites, and RAMSAR sites. In this regard, the Consultant shall work very closely with designated experts from each national utility. The Consultant shall also carry out comprehensive public consultations in determining the line route and shall ensure that these consultations are documented in signed Minutes of Meeting with list of participants or similar.

A detailed description of the selected site, including photographs and GPS coordinates, shall be provided by the Consultant depicting the location of all-natural obstacles such as relief features and artificial obstacles as well as all other useful details. The description shall include but not be limited to the location of the various obstacles listed below which should be featured in the drawings/maps:

- a) Man-made structures or obstacles (all types of residential and non-residential structures such as roads, streets, schools, dams, hospitals, offices, commercial buildings, government buildings,
- b) Infrastructure (existing power transmission and distribution lines, existing telephone lines, railroad, footpath and highway crossings, microwave towers, stream crossings etc.)
- c) Physical features (rivers, streams, mountains, valleys, swamps, farmlands, forest reserves etc.)

The description on the substation sites shall in particular provide an exhaustive list of all the local administration areas, provinces, districts and villages where the sites are located. For each of these, the following shall be identified with the support of GPS coordinates:

- Boundaries of allocated zones;
- Demarcation of farmlands and allocated properties
- Hunting Reserves and Forest Reserves
- Cultural, Religious and Heritage Sites including Cemeteries
- Markets and areas with high population densities in non-allocated areas

4.2.2. Detailed Survey of substation Sites

The detailed survey shall be conducted upon finalization selection of the line route and the approval of the ESIA by the national agencies in charge of environmental protection and Funding Agencies. The Survey shall be conducted using appropriate survey methods and in accordance with standards in the various countries. The outcome of these activities shall be contained in the Detail Survey Report.

The Works shall involve, but not be limited, to the following:

- Identification including clearing and pillaring with the use of concrete pillars.
- Detailing of roads/lanes, buildings, water bodies and other visible landmarks.
- Drafting and preparation of layout maps as well as plans and profiles drawings.

In carrying out the detail survey, the Consultant shall note the following:

- Reference pillars shall be erected to enable effective checking and vetting of the surveys and drawings. Reference pillars shall be in accordance with specifications provided by the utilities.
- Visibility of the pillars should be maintained at all times.
- The visual nature of the ground shall be noted whether pasture, woodlands, arable, etc, with special reference to such items as marshy, soft ground or rock and other relevant information such as soil instability.
- Ordnance datum shall be the basis for all levels and the level shall be shown at 2-m vertical intervals and at the beginning and end of each section; levels shall be shown of each section and at every obstruction or geographical feature.

A detailed survey report shall be presented to the WAPP Secretariat, CI-ENERGIES and LEC. The report should include, among others:

- Information to facilitate recovery or re-establishing of boundary points in the event of the pillar being destroyed, either by witness pillars or otherwise.
- Detailed list of reference pillars established and how they were established.
- Types of instruments used and their accuracies, standard deviations and variances
- Accuracy of levels
- Field books, computations sheets and all related documentations in hard and soft copies.
- Information identifying the nearest access roads to each substation site.

- Photographs showing the nature of the terrain and confirming the absence of construction (buildings, etc.) on the sites.

4.2.3. Preparation of Topographical Drawings

The preparation of drawings shall be in compliance with the requirements of CI-ENERGIES and LEC.

The substation site maps shall be drafted as follows:

- A general map showing the location of the substation sites on topographical sheets on a scale of 1:10,000.

The maps shall detail out:

- Relief features including but not limited to hedges, fences, swamps and streams
- Details of obstacles including but not limited to houses, roads, pipelines, bridges, surface nature and the like to a width of 30 m around the substation sites.

4.3. Lidar

On the basis of the approved provisional line route and the selected substation sites, the Consultant shall undertake a LIDAR study on a 200 m corridor (100 m on each side of the provisional route). The LIDAR survey will also cover the selected substation sites and their surroundings up to 200 m. The LIDAR survey will be carried out according to the following specifications:

The laser data and the DTM (Digital Terrain Model) in 3D must be:

- Points per square meter: 4 to 6 (depending on vegetation)
- Classification: Ground, Non-Ground
- Belt width: 100 m on either side of the axis of the temporary road
- Accuracy with ground control:
 - X and Y between 15cm -20cm (relative and absolute).
 - Z better than 8cm (relative and absolute).
- Accuracy without ground control:
 - X and Y between 15cm and 25cm relative, better than 0.5m absolute.
 - Z better than 8cm relative, better than 0,5m absolute.

The Lidar System must allow a good penetration of the vegetation in order to obtain the above-mentioned accuracies.

Ground control must be used with ground control points at least every 5 km, clearly identifiable on the images. The deliverables of the imagery will be:

- Pixel size: 10 to 15 cm depending on topography
- Imaging: Georeferenced ortho-photos in colour

In addition, the Lidar file must be GIS compatible and submitted in digital form with all the information necessary for the subsequent integration of maps/drawings and for detailed studies on the design of substations and transmission lines.

4.4. Environmental and Social Impact Assessment (ESIA)

The ESIA aims at focussing on the implications of the project on the various components of the environment: physical, biological and human components. It shall facilitate the understanding and determination of the likely implications of the proposed project, the relevant considerations, planning and mitigation options, that shall ensure that the project is implemented in an environmentally sound and sustainable manner. It shall also form the basis for consideration for environmental approval by funding agencies and the issuing of permits from the Environmental Protection Agencies of the two (2#) countries for the implementation.

The Consultant shall review all necessary data and reports on the proposed 225 kV WAPP Côte d'Ivoire – Liberia Interconnection Reinforcement Project, and any other additional information that could help in the development of the Environmental Impact Statement (EIS). The Consultant shall review the national and international environmental policies, procedures and legislation and regulatory frameworks as they apply to the assignment. The Consultant shall take into account the requirements of the various institutions in charge of environmental protection in each country and also the requirements indicated in Appendix 4 and comply accordingly. Requirements of Funding Agencies shall be taken into consideration in the conduct of the ESIA and preparation of the Study namely, operational policy O.P. 4.01 relating to the environmental assessment and the operational policy O.P. 4.12 on the shifting and resettlement of populations.

As part of the ESIA Study, the Consultant shall be required to undertake a scoping exercise and prepare a Scoping Report, giving among others, a Project Brief and detailing the “Terms Of Reference” for review, in the form and format required by the authorities in charge of environmental protection in the concerned countries and in line with the prevailing environmental management and protection regulations and laws in the concerned countries. Following the kick off meeting, the Consultant shall immediately proceed with a data collection exercise aimed at among others, collating all the necessary information for the preparation of the Scoping Report as well as the conduct of the Study in full compliance with national regulation and Funding Agency Guidelines. The Consultant shall make comprehensive public consultations prior to preparing the Scoping Report and shall ensure that these consultations are adequately documented in the form of signed Minutes of Meeting containing among others, lists of participants and photographs. The Consultant shall detail out in the Scoping Report, the approval processes that lead up to the issuance of the Environmental Permit and reporting requirements in each country. The Consultant shall if required, make a presentation of the Scoping Study to each of the authorities in charge of environmental protection in each of the involved countries prior to the submission of the Scoping Report. The approval of the Scoping Study by the authorities in charge of environmental protection in each country may be required prior to the submission of the Environmental Impact Statement report. The Consultant, in collaboration with each national utility, shall be expected to follow-up with the authorities to obtain the approval on the Scoping Report. The Consultant shall abide by all procedures in force in Liberia including the obtention of accreditation from EPA and shall account for all costs that shall be incurred as part of its offer.

It may be necessary that, prior to the approval of the results of the assignment and/or the issuance of an Environmental Permit, the Ministry in charge of Environmental Protection and/or national Agency in charge of Environmental Protection in the two (2#) countries shall engage independent auditors at the cost of the Consultant to verify the results of the Study, which shall also include meetings with the stakeholders, Project Affected Persons (PAP), Public Consultations, and intra/inter-ministerial meetings. The Consultant shall be required to take part in all of these meetings to among others, deliver presentations and provide clarifications as needed. The Financial Proposal submitted by the Consultant shall be deemed to have included these costs and as such, it shall be assumed that the Consultant has made in-depth investigations of the requirements of each concerned country prior to submitting Technical and Financial Proposals.

The scope of work of the Environmental and Social Impact Assessment shall include, but not be limited to the following:

- A presentation of the general methodology and the specific methodological approaches of each part of the study
 - A description of the institutional and legal framework, especially with regards to the conduct of ESIA's in each of the concerned countries

A description of the project and works to be conducted by highlighting the activities, sources of impact

- A description of existing Environment and its initial state
- A study of the variants of the project
- Identification & Assessment of potential negative and positive environmental and social impacts
- Proposal on adequate Mitigation measures
- Preparation of a Provisional Environmental & Social Management Plan (ESMP)
- Preparation of an Environmental & Social Management Monitoring Program.
- Public consultations and information.
- Proposal on the Compensation in respect of Acquisition of Right-of-Way in line with national requirements and Funding Agencies' Guidelines;
- Preparation of a Resettlement Action Plan
- Preparation of an Environmental & Social Management Plan
- Preparation of Illustrative Materials.
- Detailed Proposal, in consultation with each of the ultimate Beneficiaries, on training program to be undertaken by the environmental agencies, ministries and utilities based on an assessment conducted by the Consultant that highlights the capacity reinforcements required.

4.4.1. Study of Existing Environment

A detail study and description of the existing environment (physical, biological and socio-cultural/economy) within the ROW and substation vicinity shall be provided by the Consultant. These shall include, but not limited, to the following:

- a. Physical Environment
 - i. Topography, geology and soils
 - ii. Climate and air quality
 - iii. Noise
 - iv. Ground and Surface water

- v. Electromagnetic Frequencies
- b. Biological Environment
 - i. Terrestrial Vegetation
 - ii. Wildlife
 - iii. Ecologically sensitive sites (e.g. wetlands, forest reserves)
- c. Socio-Cultural / Economic Environment
 - i. Population and Demographics
 - ii. Ethnic, Religious and Cultural Heritage including shrines and cemeteries
 - iii. Historical resources
 - iv. Aesthetics and Tourism
 - v. Infrastructure
 - vi. Education
 - vii. Land tenure and Land Ownership
 - viii. Land Use
 - ix. Employment/Manufacturing
 - x. Agriculture
 - xi. Public Health (including HIV/AIDS)

4.4.2. Identification & Assessment of Potential Environmental and Social Impacts

Some environmental and social effects can occur during the pre-construction, construction, operational and decommissioning phases of the project. The Consultant shall identify the major sources of these effects and describe the predicted impacts from these activities during each phase of the project. Particular attention shall be made to women and other vulnerable groups. The Consultant shall elaborate on the methodology employed in the impact assessment study.

The Consultant shall evaluate the benefits of the project for the two (2#) countries and their populations, the impact of the project on development sustainability, its contribution towards poverty alleviation, and the attainment of the Sustainable Development Goals (SDGs). Particular attention shall be made to women and other vulnerable groups. The Consultant shall in particular, evaluate the job creation potential of the project especially for the youth and women as well as gender issues in conformity with the relevant directives issued at the regional and continental levels in addition to the requirements of the involved Funding Agency(ies).

4.4.3. Mitigation Measures

The Consultant shall propose mitigation measures for the potential environmental and social effects that would occur from pre-construction, construction and operational activities. The mitigation measures should be proposed by phase of the project and should be in line with national and Funding Agencies' requirements and guidelines.

4.4.4. Risk and Accident Management

The Consultant will proceed to estimate the following risks:

- risk of accident during the execution of the work, in particular, the use of equipment for loading and evacuating materials and transport equipment as well as those related to other processing activities; etc.
- accident hazards when using the loading and evacuation equipment of transport materials and equipment as well as those of the treatment; etc.;
- analysis of the utility's safety, health and environment policy, highlighting the code of good environmental and safety practices;
- development of security measures on site operations,
- maintenance and monitoring program to ensure integrity of the site;
- risk management program (protection of staff, consultation or medical follow-up of employees, adequate training);
- list of rules or codes of practice as a reference.
- the development of an emergency plan in the event of an accident. This plan must identify emergency situations and emergency responses. This plan should include (security measures, in force on the site, intervention structures, emergency and decision-making mechanisms within the company, the internal and external communication mode, etc.).

4.4.5. Provisional Environmental & Social Management Plan (ESMP)

The Consultant shall identify personnel and environmental management and training requirements for each stage of the project development and develop a Provisional Environmental & Social Management Plan (ESMP) as part of the overall ESIA report.

The ESMP shall include an appropriate monitoring program to determine impacts on the physical, biological and human environments. This program shall be used to verify whether predictions of environmental and social impacts, developed in the design phase, are accurate and that unforeseen impacts are detected at an early stage. This shall allow corrective measures to be implemented before significant damage takes place. The monitoring plan should specify what shall be monitored (indicators), when, by whom and the cost implications (investment cost and recurrent costs). The ESMP shall include a Vegetation Management Plan as well as a plan for the Management of Archaeological and Cultural Property.

The Consultant shall take into consideration lessons learnt from similar ESIA's done on similar projects and shall reflect such in the ESMP. It is hoped that the information gained from a well-designed monitoring program shall be useful in refining future designs to be more cost-effective and have fewer, and less serious, environmental and social impacts.

4.4.6. Public Consultations and Information

The Consultant shall be required to undertake consultations throughout the entire study with a number of relevant agencies including relevant Government Ministries, Non-Governmental Organizations (NGOs), Local and Regional Authorities and the public regarding the proposed project. The consultations shall make particular focus on the needs of women and other vulnerable groups. The Consultant shall also be required to make

public consultations in all two (2#) countries especially during the preparation of the Scoping, Line Route, ESIA, ESMP and the RAP reports.

All site visits by the Consultant shall have representations from the national utilities to ensure that civil society and grassroots stakeholders are not left out.

All the consultations shall be adequately documented in the form of **signed** Minutes of Meeting containing lists of participants, dates, pictures, discussion/minutes and other records of such consultations. All submitted reports shall contain scanned copies of the signed Minutes of Meeting.

The Consultant shall be required to prepare a non-technical summary report of the impact assessments in the local languages in the areas involved as mandated by the World Bank guidelines. The Consultant shall also be required to organise informative meetings with the communities impacted by the project after the Impact Assessment Study Final Report has been adopted.

4.4.7. Determination of Compensation from Acquisition of Right-of-Way

It is expected that the utilities or other appropriate agency in the various countries shall acquire the Right-Of-Way (ROW) in the project area for the smooth implementation and operation of the line.

The acquisition of all rights-of-way shall take into consideration environmental and social factors and in particular, the outcome of the ESMP and RAP. The land acquisition procedures shall be carried out in accordance with national and international regulations. The environmental and social impact of the project shall also be minimized through measures such as impact consideration in siting and design, restricting right-of-way use by un-authorized persons, erosion and sediment control during and after construction, and use of low impact maintenance procedures.

Following consultations, the EIS shall provide information regarding the acquisition of the rights-of-way, their lengths, general locations and the local and national / international policies and requirements regarding acquisition of these rights-of-way.

The Consultant shall undertake a detailed survey of the entire ROW and provide information on affected individual and community properties, forest reserves and compensation packages that may be required for the acquisition of the rights-of-way in the ESIA. In this regard, a geo-referenced Property Impact Record (PIR) shall be prepared as part of the ESIA but as a stand-alone report with clear, justifiable cut-off dates for the compensation. The PIR shall include but not be limited to:

- An exhaustive list of all of the Owners of private properties (including trees, farms, plantations, traditional land, and similar) together with their addresses and identity cards (physical persons)
- A description of the location of all these properties, including GPS coordinates with map illustrations;
- The quantity, quality and nature of properties of each of the Owners

- The quantities of trees, broken down by type, in protected areas (Forest Reserves and Parks) and within the corridor.
- The identity of the people affected, those of the operators (owners of the fields) and / or traditional landowners must be systematically noted along the corridors;
- The approximate dimension, age, and health of the trees in addition to any other information that would facilitate their valuation for the purposes of compensation
- The unit price and total cost of public and private properties in line with national legislation and for validation by the concerned national utility.

In noting that the PIR shall also be an input for the preparation of the Resettlement Action Plan, the Consultant shall also include, but not limited to, for each Project Affected Person (PAP):

- number of wives
- number of children below 18 years
- number of children above 18 years
- number of children still in school 18 years
- number of other persons living with PAP
- number of handicapped persons living with PAP
- estimation of annual family income, precising the source(s) of income(s)

Particular attention shall be paid to sensitive locations such as sacrificial sites, sacred trees and woods, cultural and scientific sites, properties with title deeds. In each village/community, the inventory shall be done in the presence of the national utility, local authorities and local chiefdoms if present. The Financial Proposal submitted by the Consultant shall be deemed to have included the costs of participation of 1 Representative from the national utility, 1 Representative from the local administration and 1 Representative from the local chiefdom. The outcomes of all visits related to the preparation of the PIR shall be contained in Minutes of Meeting signed by each participant and the Consultant.

The Consultant shall submit for approval by the national utilities, a sample Inventory Form that shall be used to collect information for the preparation of the PIR. As part of submission of the PIR as well as the Final Report on the Resettlement Action Plan (RAP), the Consultant shall submit in form, format and content acceptable to the Client and the Funding Agency(ies), the complete database of the information collected within the framework of preparing the PIR and the RAP.

4.5. Preparation of a Resettlement Action Plan

The Consultant shall prepare an acceptable RAP based on the most recent and accurate information on affected populations. The Consultant shall be assisted by a Surveyor to localize the limits of the provisional Line Route through the GPS coordinates already established for the corridor. The Consultant shall familiarize himself with the requirements of the national agencies and Funding Agencies in preparing RAPs and ensure full adherence. The RAP shall provide clear and verifiable information on the Project Affected Persons (PAPs) with clear, justifiable cut-off dates for the compensation. Specifically, the Consultant is expected to:

- Prepare the RAP based on a contradictory inventory of assets and that of the directly affected persons who may be displaced or whose income or livelihoods may be displaced, by the project and carry out an assessment of the assets and incomes. Particular attention shall be paid to women and children;
- Describe the policy and regulatory context (e.g. laws, regulations, and procedures) of the Governments of all the two (2#) countries on resettlement, and demonstrate their relevance to the most recent appropriate African Development Bank policy and World Bank's operational policy on involuntary resettlement (OP 4.12) covering displacement, resettlement, and livelihood restoration;
- Determine the compensation and other resettlement assistance;
- Conduct consultations with identified project affected persons (PAPs) about the resettlement and other acceptable alternatives; Assist the implementing agency and local leaders in establishing the institutional set up for decision making and responsibilities for RAP implementation and procedure for grievance redress; and
- Develop arrangements for RAP monitoring and evaluation, including completion of a baseline socio-economic survey of PAPs and host communities.

The following sections of the RAP correspond to the scope of work to be completed by the Consultant.

- *Description of the project:* General description of the affected areas.
- *Potential Impacts:* Identification of the: (i) components or activities that require resettlement or restriction of access; (ii) zone of impact of components or activities; (iii) alternatives considered to avoid or minimize resettlement or restricted access; and (iv) mechanisms established to minimize resettlement, displacement, and restricted access, to the extent possible, during project implementation.
- *Objectives:* The main objectives of the resettlement program as these apply to the [name of project] should be described in relation to the project.
- *Socio-economic studies:* The findings of socio-economic studies to be conducted with the involvement of potentially affected people shall be needed. These generally include the results of a census of the PAPs covering:
 - a) Current occupants of the affected area as a basis for design of the RAP and to clearly set a cut-off date, the purpose of which is to exclude subsequent inflows of people from eligibility for compensation and resettlement assistance;
 - b) Standard characteristics of displaced households, including a description of production systems, labor, and household organization; and baseline information on livelihoods (including, as relevant, production levels and income derived from both formal and informal economic activities) and standards of living (including health status) of the displaced population;
 - c) Magnitude of the expected loss, total or partial, of assets, and the extent of displacement, physical or economic;

- d) Information on vulnerable groups or persons, for whom special provisions may have to be made; and
- e) Provisions to update information on the displaced people's livelihoods and standards of living at regular intervals so that the latest information is available at the time of their displacement, and to measure impacts (or changes) in their livelihood and living conditions.

There may be other studies that the RAP can draw upon, such as those describing the following, as needed:

- Land tenure, property, and transfer systems, including an inventory of common property natural resources from which people derive their livelihoods and sustenance, non-title-based usufruct systems (including fishing, grazing, or use of forest areas) governed by local recognized land allocation mechanisms, and any issues raised by different tenure systems in the sub project area;
- Patterns of social interaction in the affected communities, including social support systems, and how they shall be affected by the sub-project;
- Public infrastructure and social services that shall be affected; and
- Social and cultural characteristics of displaced communities, and their host communities, including a description of formal and informal institutions. These may cover, for example, community organizations; cultural, social or ritual groups; and non-governmental organizations (NGOs) that may be relevant to the consultation strategy and to designing and implementing the resettlement activities.
- *Legal Framework:* The analysis of the legal and institutional framework in Cote d'Ivoire and Liberia should cover the following:
 - a) Scope of existing land and property laws governing resources, including state-owned lands under eminent domain and the nature of compensation associated with valuation methodologies; land market; mode and timing of payments, etc.;
 - b) Applicable legal and administrative procedures, including a description of the grievance procedures and remedies available to PAPs in the judicial process and the execution of these procedures, including any available alternative dispute resolution mechanisms that may be relevant to implementation of the RAP for the sub-project;
 - c) Relevant laws (including customary and traditional law) governing land tenure, valuation of assets and losses, compensation, and natural resource usage rights, customary personal law; communal laws, etc. related to displacement and resettlement, and environmental laws and social welfare legislation;
 - d) Laws and regulations relating to the agencies responsible for implementing resettlement activities in the sub-projects;
 - e) Gaps, if any, between local laws covering resettlement and the Bank's resettlement policy, and the mechanisms for addressing such gaps; and

- f) Legal steps necessary to ensure the effective implementation of RAP activities in the sub-projects, including, as appropriate, a process for recognizing claims to legal rights to land, including claims that derive from customary and traditional usage, etc. and which are specific to the sub-projects.
- The institutional framework governing RAP implementation generally covers:
 - a) Agencies and offices responsible for resettlement activities and civil society groups like NGOs that may have a role in RAP implementation;
 - b) Institutional capacities of these agencies, offices, and civil society groups in carrying out RAP implementation, monitoring, and evaluation; and
 - c) Activities for enhancing the institutional capacities of agencies, offices, and civil society groups, especially in the consultation and monitoring processes.
 - *Eligibility and entitlements:* Definition of displaced persons or PAPS and criteria for determining their eligibility for compensation and other resettlement assistance, including relevant cut-off dates. This is based on the definition of the TL right-of-way (RoW), which is specified by utilities as 50 meters horizontal and XX meters vertical clearance from the closest physical structure to the TL conductor. [As recommended by the WAPP Secretariat], structures below this vertical clearance, and those that do not hamper access to the TL, may remain under the TL provided that agreed and appropriate conditions are met (e.g. no burning; no planting of crops or trees that would exceed the vertical clearance; access boundaries around the 5 meter perimeter of each tower). Land needed for the sub-station and access road shall need to be cleared as part of the RoW.
 - *Valuation of and compensation for losses:* The methodology to be used for valuing losses, or damages, for the purpose of determining their replacement costs; and a description of the proposed types and levels of compensation consistent with national and local laws and measures, as necessary, to ensure that these are based on acceptable values (e.g. market rates).
 - *Resettlement Measures:* A description of the compensation and other resettlement measures that shall assist each category of eligible PAPS to achieve the resettlement objectives. Aside from compensation, these measures should include programs for livelihood restoration, grievance mechanisms, consultations, and disclosure of information.
 - *Site selection, site preparation, and relocation:* If a resettlement site is an option, describe the alternative relocation sites as follows:
 - a) Institutional and technical arrangements for identifying and preparing relocation sites, whether rural or urban, for which a combination of productive potential, locational advantages, and other factors is at least comparable to the advantages of the old sites, with an estimate of the time needed to acquire and transfer land and ancillary resources;
 - b) Any measures necessary to prevent land speculation or influx of eligible persons at the selected sites;

- c) Procedures for physical relocation under the project, including timetables for site preparation and transfer; and
 - d) Legal arrangements for recognizing (or regularizing) tenure and transferring titles to resettlers.
- *Housing, infrastructure, and social services:* Plans to provide (or to finance resettler's provision of) housing, infrastructure (e.g. water supply, feeder roads), and social services to host populations; and any other necessary site development, engineering, and architectural designs for these facilities should be described.
 - *Environmental protection and management.* A description of the boundaries of the relocation area is needed. This description includes an assessment of the environmental impacts of the proposed resettlement and measures to mitigate and manage these impacts (coordinated as appropriate with the environmental assessment of the main investment requiring the resettlement).
 - *Community Participation:* Consistent with the Funding Agencies's policies on consultation and disclosure, a strategy for consultation with, and participation of, PAPs and host communities, should include:
 - a) Description of the strategy for consultation with and participation of PAPs and hosts in the design and implementation of resettlement activities;
 - b) Summary of the consultations and how PAPs' views were taken into account in preparing the resettlement plan; and
 - c) Review of resettlement alternatives presented and the choices made by PAPs regarding options available to them, including choices related to forms of compensation and resettlement assistance, to relocating as individual families or as parts of pre-existing communities or kinship groups, to sustaining existing patterns of group organization, and to retaining access to cultural property (e.g. places of worship, pilgrimage centers, cemeteries); and
 - d) Arrangements on how PAPs can communicate their concerns to project authorities throughout planning and implementation, and measures to ensure that vulnerable groups (including indigenous peoples, ethnic minorities, landless, children and youth, and women) are adequately represented.
 - The Consultations should cover measures to mitigate the impact of resettlement on any host communities, including:
 - a) Consultations with host communities and local governments;
 - b) Arrangements for prompt tendering of any payment due the hosts for land or other assets provided to PAPs;
 - c) Conflict resolution involving PAPs and host communities; and
 - d) Additional services (e.g. education, water, health, and production services) in host communities to make them at least comparable to services available to PAPs.

- *Grievance procedures:* The RAP should provide mechanisms for ensuring that an affordable and accessible procedure is in place for third-party settlement of disputes arising from resettlement. These mechanisms should take into account the availability of judicial and legal services, as well as community and traditional dispute settlement mechanisms. The Consultant shall also review Best Practices in this matter and integrate into his Proposal where possible.
- *RAP implementation responsibilities:* The RAP should be clear about the implementation responsibilities of various agencies, offices, local representatives and also take into consideration the adopted implementation strategy/institutional framework for the project. The RAP shall depict a step-by-step process of how the compensation shall be implemented in each concerned country. These responsibilities should cover (i) delivery of RAP compensation and rehabilitation measures and provision of services; (ii) appropriate coordination between agencies and jurisdictions involved in RAP implementation; and (iii) measures (including technical assistance) needed to strengthen the implementing agencies' capacities of responsibility for managing facilities and services provided under the project and for transferring to PAPs some responsibilities related to RAP components (e.g. community-based livelihood restoration; participatory monitoring; etc.).
- *Implementation Schedule:* An implementation schedule covering all RAP activities from preparation, implementation, and monitoring and evaluation should be included. These should identify the target dates for delivery of benefits to resettlers and hosts and a clearly defined closing date. The schedule should indicate how the RAP activities are linked to the implementation of the overall project.
- *Costs and budget:* The RAP for the specific sub-projects should provide detailed (itemized) cost estimates for all RAP activities, including allowances for inflation, population growth, and other contingencies; timetable for expenditures; sources of funds; and arrangements for timely flow of funds. These should include other fiduciary arrangements consistent with the rest of the project governing financial management and procurement.
- *Monitoring and evaluation:* Arrangements for monitoring and evaluation of RAP activities by the implementing agency, and the independent monitoring of these activities, should be included in the RAP section on monitoring and evaluation. The final evaluation should be done by an independent monitor or agency to measure RAP outcomes and impacts on PAPs' livelihood and living conditions. The Funding Agencies have examples of performance monitoring indicators to measure inputs, outputs, and outcomes for RAP activities; involvement of PAPS in the monitoring process; evaluation of the impact of RAP activities over a reasonable period after resettlement and compensation, and using the results of RAP impact monitoring to guide subsequent implementation.

In preparing the draft RAP, the Consultant shall hold consultation meetings with all stakeholders including the relevant Government Ministries, national Agencies, local authorities, NGOs, Governors, Mayors, Prefects, community/village leaders, other recognized authorities in each of the concerned countries, and PAPs to ensure that their views are adequately incorporated in the report. These consultation meetings shall be adequately documented as previously indicated.

As part of the Scoping Report, the Consultant shall submit for the approval of the national utilities, the sample Questionnaires that shall be used to conduct the socio-economic studies.

4.6. Environmental & Social Management Plan

The Consultant shall develop an Environmental & Social Management Plan (ESMP) for the 225 kV WAPP Côte d'Ivoire – Liberia Interconnection Reinforcement Project. The Consultant shall familiarize himself with the requirements of the national agencies and Funding Agencies in preparing ESMPs and ensure full adherence.

The ESMP to be developed shall include but not be limited to the following:

- a. Definition in detail of the proposed measures, including implementation schedule and expected outcomes, required to mitigate against the negative environmental and social impacts of the project
- b. The cost for implementing the mitigating measures
- c. Composition and job description of project environmental and social management unit of the Project Implementation Team (PIT), which should include an environmentalist and a safeguards specialist. This description shall be in line with the institutional framework adopted by the concerned project for the implementation of the project;
- d. Structure of reporting for project environmental and social management unit; this should be linked with operational and administrative activities.
- e. Capacity building requirements (including training, equipment) of the environmental departments of CI-ENERGIES and LEC, the institutions in charge of environmental protection, and the institutions that shall be involved in the implementation of the ESMP and RAP. The Consultant shall conduct a detailed assessment of the capacity building needs and propose an appropriate elaborate program including Budget. In formulating the program, the Consultant shall hold discussions with each of the entities and confirm the outcomes of the discussions through signed Minutes of Meeting.
- f. Institutional aspects on responsibility and timing for all relevant issues during the implementation of the ESMP.
- g. Socio-economic conditions, summary of potential resettlement and compensation, livelihood restoration, and community development.
- h. Parameters to be monitored, e.g., noise, electromagnetic force, etc. and definition of responsibilities.
- i. Sampling sites.
- j. Frequency of measurements.
- k. Method of sampling and analysis.
- l. Monitoring program.
- m. Proper and adequate record keeping.
- n. Places to be restricted to unauthorized persons.
- o. Environmental audit and review program covering all activities to assess compliance with contract requirements and ensure meeting requirements of the EPA and other stakeholders including the general public. The program should include:
 - Internal review - undertaken by the staff of the Implementing Agency/Unit (in line with adopted Institutional framework) in addition to CI-ENERGIES and LEC staff reporting internally
 - External audit - undertaken by independent consultants reporting to the Implementing Agency/Unit (in line with adopted Institutional framework) in addition to CI-ENERGIES and LEC.

The ESMP shall include an appropriate Monitoring Program to determine impacts on the physical, biological and human environments. This program shall be used to verify whether predictions of environmental and social impacts, developed in the design phase, are accurate and that unforeseen impacts are detected at an early stage. This shall allow corrective measures to be implemented before significant damage takes place. The monitoring plan should specify what shall be monitored (indicators), when, by whom and the cost implications (investment cost and recurrent costs).

The ESMP shall include a Vegetation Management Plan as well as a requirement for the contractor for a “Chance Find Procedure” for the management of archaeological and cultural property and a chapter on public consultation and the minutes of public consultation meetings in an annex of the ESIA.

The Consultant shall take into consideration lessons learnt from similar ESIA’s done on similar projects and shall reflect such in the ESMP. It is hoped that the information gained from a well-designed monitoring program shall be useful in refining future designs to be more cost-effective and have fewer, and less serious, environmental and social impacts.

The ESMP should outline responsibilities for implementation, the time frame of implementation, and budget as required in national directives, the AfDB’s, EU and World Bank’s format of the preparation of such documents. Specific requirements relating to ESMP’s are set out in Annex C of the World Bank’s OP 4.01 and the Consultant shall conform to these requirements in addition to those of the other Funding Agencies that shall be involved in the project. The Consultant shall also conform to the requirements of EU directives. In case of contradiction, the most stringent shall apply.

In preparing the draft ESMP, the consultant shall hold consultation meetings with all the national Agencies and Ministries that shall be involved in the implementation of the ESMP to ensure that their views are adequately incorporated in the report. These consultation meetings shall be adequately documented as previously indicated.

The ESMP shall ensure that environmental and social ‘due diligence’ is observed during the construction phase and in the operational/maintenance activities of the 225 kV WAPP Côte d’Ivoire – Liberia Interconnection Reinforcement Project. The responsibilities of the Contractor and the Owners’ Engineer need to be detailed in the ESMP and shall include but not limited to:

- Securing of sites for work camps
- Opening up of corridors, access roads, cutting of trees
- Precautions in hunting areas and measures to combat poaching
- Sources of water for the work sites
- Opening of tracks required to facilitate the works
- Waste Management (liquids, solids, dust, noise)
- Hygiene and security measures (obstruction of road traffic)
- HIV transmission prevention

International practice requires that the Contractor prepares and implements, after approval, his own Contractor ESMP called CESMP, while the supervising engineer by contractual arrangement shall need to be made responsible for the adequate implementation of the CESMP.

4.7. Preparation of Illustrative Materials

The Consultant shall include relevant maps, plans, tables, graphs, diagrams and any other illustrative material that would make easy appreciation of the content of the ESIA, RAP and ESMP. These materials shall show environmental sites/issues/risks and restoration / landscape of the study area. Examples of features that could be represented on the maps include:

- a. Communities,
- b. Ecological zones,
- c. Natural resources (habitats, forests),
- d. Places of historic and cultural interests,
- e. Risky zones (floods, landslides, etc.).

4.8. Training Programme

Training of staff of CI-ENERGIES and LEC as well as the institutions in charge of environmental protection and involved in the implementation of ESMPs and RAPs in the concerned countries shall be required. The training, which shall be conducted in each country, shall cover the issues as outlined in the Provisional Environmental & Social Management Plan in the ESIA and the Draft Resettlement Action Plan which could include but not limited to the following:

- Management and monitoring of health, safety, environmental and social issues
- Management of the right-of-way acquisition process
- Management of the right-of-way during the maintenance phase of the project
- Environmental and Social impact mitigations
- Implementation of ESMP and RAP, in particular, the institutional framework.

The training shall also be opportunity for the Consultant to validate with each stakeholder, the capacity building requirements for implementing the ESMP and RAP in the respective countries in line with the adopted institutional framework for the project.

The Consultant shall design and propose the training program, which should be approximately costed. The proposal shall therefore also include costs associated with the full transfer of hardware and software to the WAPP Secretariat and each of the utilities, of the different software used within the framework of the Line Route and Environmental and Social Impact Assessment Study. The training shall be done in a workshop to be organized by the Consultant in each of the countries after submission of the draft reports under the ESIA. The Consultant shall discharge the WAPP Secretariat and the concerned Ministries and utilities of all costs (including but not limited to venue, transportation, subsistence, interpretation, accommodation if necessary) of providing the training and the participation of 20 experts in each country for a period not less than 1 week including all stakeholders that shall be involved in the implementation of the ESMP and RAP. The outcome of discussions at this training workshop would be an input to finalize the ESMP and RAP reports. At the conclusion of the training, the Consultant shall submit a comprehensive report on the training conducted, as part of the Monthly Report for the month in which the training was conducted.

4.9. Public Information and Sensitisation Campaign

At the end of the study and elaboration of various reports approved by the relevant authorities in the concerned countries, the Consultant shall prepare a non-technical summary report of the impact assessments in the official languages of the countries and in the local languages prevailing in the areas crossed by the interconnection lines.

The Consultant shall carry out informative and sensitization campaigns to the populations, public and private entities within the areas traversed by the interconnection line. The campaigns shall be undertaken in the official languages of the involved countries and in the local languages within the areas traversed by the interconnection line. The public informative and sensitization campaigns shall contain issues related but not be limited to:

- Project Implementation,
- Project benefits for the two (2#) countries and their populations,
- Environmental and social impacts of the project,
- Envisaged compensation measures
- Dangers and safety measures related to the interconnection line

The Consultant shall propose an appropriate approach and methodology that shall be approved by institutions in charge of environmental protection in the two (2#) countries. The Consultant shall prepare, deliver and distribute appropriate presentation material including the Non-Technical Summary Report written in the local language(s) in the areas traversed by the project. The Consultant shall propose a medium acceptable to the utilities and institutions in charge of environmental protection in the two (2#) countries for the informative and sensitization campaign. The Consultant shall assume in their proposal that a minimum of one (1#) week shall be spent in the areas impacted by the project in each of the two (2#) countries and shall discharge the WAPP Secretariat, relevant Ministries and concerned national utilities, in line with WAPP Secretariat practice, of all costs associated with organizing of the campaigns (including but not limited to venue, interpretation) and the full costs of participation of two (2#) Representatives from each concerned utility, one (1#) Representative from each Ministry in charge of Energy, one (1#) Representative from each Ministry in charge of Environment, one (1#) Representative from each Ministry in charge of Interior Affairs, and two (2#) Representatives from the WAPP Secretariat (including but not limited to transportation, subsistence and accommodation). At the conclusion of the Campaign, the Consultant shall prepare a Report detailing among others, the conduct and outcomes of the exercise as well as the Participants in attendance.

4.10. Electrification of Communities/Towns/Villages along Line route and around substations

As a Social Mitigation Measure and to increase acceptability of the project by the populations in the vicinity of the project, it is envisaged that all communities/towns/villages in proximity of the line route shall be electrified. This electrification could be done through conventional means (medium voltage outlets from the Substations to be constructed under the project), extensions from nearby distribution systems, and/or shield-wire technology (SWS). The Consultant shall among others and through a dedicated team, identify the eligible communities/towns/villages, propose jointly with the Consultant preparing the Feasibility Study routes for the medium voltage networks, and prepare comprehensive ESIA's for three (3#) representative communities/towns/villages per country in conformity with the requirements of the concerned

countries and Funding Agencies. The Consultant shall note that the ESIA's shall only be considered final after receipt of Environmental Permits and approval from the Funding Agencies. Very close collaboration and coordination with the Consultant preparing the Feasibility Study and Preparation of Bidding Documents shall be required in preparing this part of the scope of work.

The scope of services to be provided by the Consultant shall include but not be limited to:

- Identification of Communities/Towns/Villages along Line route and around substations;
- Identification and mapping of provisional line routes for the medium voltage networks and substation locations;
- Preparation of Environmental and Social Impact Assessment (ESIA);
- Preparation of Environmental and Social Management Plan (ESMP);
- Determination of Compensation from Acquisition of Right-of-Way;
- Preparation of a Resettlement Action Plan (RAP);
- Public Consultations and Information;
- Public Information and Sensitisation Campaign;

4.10.1. Identification of Communities/Towns/Villages along Line route and around substations

The Consultant shall note that all villages/towns/communities that are 5-km on each side of the line corridor and containing between 500 to 2,500 inhabitants along the entire length of the line. It is envisaged that the same shall be done for villages/towns/communities around the identified substations. As such, upon adoption of the provisional Line route, the Consultant shall catalogue all eligible villages/town/communities in a separate volume of the Final Report on the Provisional Line Route, describing among others, their distance from the proposed line route/substation and population. The Consultant shall also identify three (3#) villages/town/communities per country that shall be representative of the different types in the catalogue. The outcomes of this work shall be submitted in a separate Report that shall be considered and validated by a meeting of the Stakeholders that the Consultant shall participate in. The Consultant shall note that these three (3#) representative communities shall be subject of a comprehensive ESIA that shall be approved by the respective Agencies in charge of environmental protection in each of the countries through the issuance of environmental Permits.

4.10.2. Identification and mapping of provisional line routes for the medium voltage networks and substation locations

The Consultant shall note that the technology mode for achieving the electrification of each village/town/community shall be determined by the Consultant preparing the Feasibility Study and Preparation of Bidding Documents. Once the technology mode has been adopted by the stakeholders, the two (2) Consultants shall conduct joint field trips with the participation of the concerned utilities/institutions to identify the most optimal provisional line routes for the medium voltage networks as well as locations for the required medium voltage substations in conformity with Sections 4.1 and 4.2 of these Terms of Reference (Line Route and ESIA Study). In this respect, the Consultant shall note that the ROW for 33 kV lines shall be 3 meters, and

where necessary, be at least 1.5 meters from the edge of a road. During the study to identify the most optimal provisional line routes for the medium voltage networks as well as locations for the required medium voltage substations, the corridor shall be mapped with GPS and in XYZ coordinate system. The Consultant shall prepare a Report that describes the provisional line routes as well as provide the XYZ data of these routes in an appropriate spreadsheet format acceptable to the WAPP Secretariat, LEC and CI-ENERGIES. The Consultant shall bear in mind that the information to be submitted shall be used for further detailed survey, subsequent tower spotting on the line and the estimation of medium and voltage networks. In the description, the Consultant shall depict the location of all natural obstacles such as relief features and artificial obstacles as well as all other useful details. The description shall include but not be limited to the location of the various obstacles listed below which should be featured in the drawings/maps:

- a) Man-made structures or obstacles (all types of residential and non-residential structures such as roads, streets, schools, dams, hospitals, offices, commercial buildings, government buildings,
- b) Infrastructure (existing power transmission and distribution lines, existing telephone lines, railroad, footpath and highway crossings, microwave towers, stream crossings etc.)
- c) Physical features (rivers, streams, mountains, valleys, swamps, farmlands, forest reserves etc.)

The following shall be identified with the support of GPS coordinates:

- Boundaries of allocated zones;
- Demarcation of farmlands and allocated properties
- Hunting Reserves and Forest Reserves
- Cultural, Religious and Heritage Sites including Cemeteries
- Markets and areas with high population densities in non-allocated areas

The Consultant shall note that the line routes shall be considered as final only after the detailed ESIA has been conducted, adopted by the countries and Funding Agencies and approved by the national Agencies in charge of Environmental Protection through the issuance of Permits.

The outcomes of this work shall be contained in the Report of the Environmental and Social Impact Assessment but in a separate volume.

4.10.3. Environmental and Social Impact Assessment (ESIA)

Following validation of the list of communities and subsequent to the joint identification of the provisional line routes for the medium voltage network, the Consultant shall conduct a detailed ESIA on the three (3#) representative communities per country as well as their medium voltage line routes and substation locations, in full conformity with the relevant parts of Sections 4.3 and 4.6 of these Terms of Reference. The outcomes of this work shall be contained in a separate Report to be considered and adopted by the Stakeholders during a Seminar that the Consultant shall participate in.

4.10.4. Environmental and Social Management Plan (ESMP)

The Consultant shall also prepare a detailed ESMP on the three (3#) representative communities per country as well as their medium voltage line routes and substation locations, and in full conformity with Sections 4.3.5 and 4.6 of these Terms of Reference. The outcomes of this work shall be contained in a separate Report to be considered and adopted by the Stakeholders during a Seminar that the Consultant shall participate in.

4.10.5. Determination of Compensation from Acquisition of Right-of-Way

The Consultant shall determine the compensation required from acquiring the ROWs in the three (3#) representative communities per country as well as their medium voltage line routes and substation locations, and prepare the related PIRs as prescribed in Section 4.3.7 of these Terms of Reference. The outcomes of this work shall be contained in the separate Report on the RAP related to the electrification of the communities.

4.10.6. Preparation of a Resettlement Action Plan (RAP)

The Consultant shall also prepare a detailed RAP on the three (3#) representative communities per country as well as their medium voltage line routes and substation locations, and in full conformity with Sections 4.3.8 and 4.6 of these Terms of Reference. The outcomes of this work shall be contained in a separate Report to be considered and adopted by the Stakeholders during a Seminar that the Consultant shall participate in.

4.10.7. Public Consultations and Information

For the three (3#) representative communities per country as well as their medium voltage line routes and substation locations, the Consultant shall conduct public consultations and information campaigns in full conformity with Section 4.3.6 of these Terms of Reference.

4.10.8. Public Information and Sensitisation Campaign

Following issuance of Environmental Permits for the three (3#) representative communities per concerned country, the Consultant shall carry out public consultations and information campaigns for these representative communities in full conformity with Section 4.8 of these Terms of Reference.

5. DURATION OF STUDY AND SCHEDULE

The duration for executing the Line Route and the Environmental and Social Impact Assessment Study shall not exceed 82 weeks. The Consultant shall propose in their offer, a detailed implementation schedule for the consultancy and should take into consideration that the Report on the Provisional Line Route shall be an input into the Feasibility Study.

In this regard, the following indicative schedule is proposed:

	Milestone
Date of commencement of Services	Wo
Submission of Inception Report	Wo + 4 weeks
Submission of Draft Scoping Report	Wo + 6 weeks
Submission of Comments on Draft Scoping Report	Wo + 8 weeks
Submission of Final Scoping Report	Wo + 10 weeks
<i>Approval of Final Scoping Report by Permitting Authorities in Cote d'Ivoire and Liberia.</i>	<i>Wo + 14 weeks</i>
Submission of Draft Report on the Provisional Line Route	Wo + 16 weeks
Field trip to assess proposed Provisional Line Route	Wo + 17 weeks
Submission of Comments on Draft Report on the Provisional Line Route	Wo + 19 weeks
Submission of Final Report on the Provisional Line Route	Wo + 21 weeks
Submission of Draft Reports ESIA, ESMP, RAP	Wo + 28 weeks
Training program commences	Wo + 30 weeks
Training program concludes	Wo + 32 weeks
Submission of Comments on Draft Reports ESIA, ESMP, RAP	Wo + 35 weeks
Submission of Final Reports ESIA, ESMP, RAP	Wo + 37 weeks
Submission of Non-technical Summary report	Wo + 37 weeks
Submission of Non-technical local language Summary report	Wo + 37 weeks
<i>Approval of Final ESIA, ESMP, RAP Reports by Permitting Authorities in Cote d'Ivoire and Liberia.</i>	<i>Wo + 45 weeks</i>
Submission of Report on Final Line Route	Wo + 50 weeks
Submission of Translated Final ESIA, ESMP, RAP, Non-technical Summary Reports	Wo + 50 weeks
<i>Commencement of Public Information and Sensitization Campaigns</i>	<i>Wo + 52 weeks</i>
<i>Completion of Public Information and Sensitization Campaigns</i>	<i>Wo + 54 weeks</i>
Submission of Draft Detail Survey Report	Wo + 55 weeks
Site Visit with utilities to validate pillaring of Corridor commences	Wo + 57 weeks
Submission of Draft Report on Public Information and Sensitization Campaigns	Wo + 58 weeks
Site Visit with utilities to validate pillaring of Corridor concludes	Wo + 59 weeks
Submission of Comments on Draft Report on Public Information and Sensitization Campaigns	Wo + 60 weeks
Submission of Final Detail Survey Report	Wo + 61 weeks
Submission of Final Report on Public Information and Sensitization Campaigns	Wo + 61 weeks
Submission of Draft Project Completion Report	Wo + 78 weeks
Submission of Comments on Draft Project Completion Report	Wo + 80 weeks
Submission of Final Project Completion Report	Wo + 82 weeks

For the scope relating to the Electrification of Communities/Towns/Villages, the following indicative schedule is proposed:

	Milestone
Date of commencement of Services (same as above)	Wo
Submission of draft Report on the Identification of Communities/Towns/Villages along Line route and around substations	Wo + 23 weeks
¹ Submission of Comments on draft Report on the Identification of Communities/Towns/Villages along Line route and around substations (Seminars)	Wo + 25, 26 weeks
Submission of Final Report on the Identification of Communities/Towns/Villages along Line route and around substations	Wo + 27 weeks
Commencement of joint field trips with Feasibility Consultant to identify provisional routes for medium voltage networks and substation locations	Wo + 37 weeks
Conclusion of joint field trips with Feasibility Consultant to identify provisional routes for medium voltage networks and substations	Wo + 40 weeks
Submission of Draft Scoping Report	Wo + 43 weeks
Submission of Comments on Draft Scoping Report (Seminar)	Wo + 45 weeks
Submission of Final Scoping Report	Wo + 47 weeks
<i>Approval of Final Scoping Report by Permitting Authorities in Liberia & Côte d'Ivoire (if required).</i>	Wo + 50 weeks
Submission of Draft Reports ESIA, ESMP, RAP	Wo + 53 weeks
² Submission of Comments on Draft Reports ESIA, ESMP, RAP (Seminars)	Wo + 55, 56 weeks
Submission of Final Reports ESIA, ESMP, RAP	Wo + 58 weeks
Submission of Non-technical Summary report	Wo + 58 weeks
Submission of Non-technical local language Summary report	Wo + 58 weeks
<i>Approval of Final ESIA, ESMP, RAP Reports by Permitting Authorities in Liberia & Côte d'Ivoire.</i>	Wo + 66 weeks
<i>Commencement of Public Information and Sensitization Campaigns</i>	Wo + 70 weeks
<i>Completion of Public Information and Sensitization Campaigns</i>	Wo + 72 weeks
Submission of Draft Report on Public Information and Sensitization Campaigns	Wo + 73 weeks
Submission of Comments on Draft Report on Public Information and Sensitization Campaigns	Wo + 75 weeks
Submission of Final Report on Public Information and Sensitization Campaigns	Wo + 76 weeks

6. DELIVERABLES

The Services by the Consultant include the preparation and submission in a **timely manner** of the reports, documents, maps and drawings in English and French. All documents, maps, drawings and

¹ The Consultant shall organize simultaneous meetings in each of the concerned countries

² The Consultant shall organize simultaneous meetings in each of the concerned countries

reports shall be prepared in English and French and shall be submitted by the Consultant simultaneously to the WAPP Secretariat and the utilities in each country. The Reports shall be submitted under cover of official letter from the WAPP Secretariat. The Deliverables shall be consistent with the packaging of the assignments. As part of the Deliverables, the Consultant shall support the concerned utilities to follow up with the relevant national agencies/ Ministries to secure approval of reports.

The Consultant, in addition to the events indicated above, shall make provisions in his proposals to organize meetings and seminars to obtain comments on all draft versions of reports with particular reference to (i) kick-off meeting of the Study (2 Meeting days) (ii) Scoping Report - meetings shall be simultaneously held in each of the concerned countries) (1 Meeting day) (iii) Provisional Line Route Study Report (3 meeting days) (iv) ESIA, ESMP and RAP Reports (4 meeting Days each – the meetings shall be simultaneously held in each of the concerned countries) (v) three (3) donor conferences (2 meeting Days each) and (vi) one (1) Meeting of Ministers in charge of Energy in the concerned countries (3 Meeting Days). The Consultant shall discharge the WAPP Secretariat and concerned Ministries and utilities of all costs related to the organization of all meetings, seminars, workshops and field trips (including validation of line route, validation of detail survey, public consultations, public sensitization campaigns) in line with WAPP Secretariat practice, which shall include but not be limited to venue, simultaneous interpretation and full costs of participation of three (3) participants from each country (Project Manager from Utility, 1 Environmentalist from Utility, 1 Representative from Ministry in charge of Environment) and three (3) participants from WAPP Secretariat. For the training in each country, the Consultant shall note that up to twenty (20) participants could take part in the workshop. For the Public Information and Sensitisation Campaign in each of the concerned countries, the Consultant shall note that 1 Representative from the Ministry in charge of energy shall also take part.

As part of the examination of the Draft Provisional Line Route Study Report, the Consultant shall organize simultaneously in each country, a field trip (5 Meeting days) of the utilities concerned to visit the entire proposed line route and substations. For the draft Scoping Report, the Consultant shall make simultaneous visits to each of the utilities and organise meetings to collate comments. The outcomes of the discussions shall be captured in signed Minutes of Meeting with list of participants.

For the scope relating to the Electrification of Communities/Towns/Villages, the Consultant shall also make provisions in his proposals to organize meetings and seminars to obtain comments on all draft versions of reports with particular reference to the (i) Identification of Communities/Towns/Villages along Line route and around substations (2 Meeting days) – simultaneous meetings to be held in the concerned countries (ii) Scoping Report - simultaneous meetings to be held in the concerned countries (2 Meeting days) (iii) ESIA, ESMP & RAP Reports (Liberia, Cote d'Ivoire) - simultaneous meetings to be held in the concerned countries, (3) Meeting days each). As part of the identification of provisional routes for medium voltage networks and substation locations, the Consultant shall organize simultaneously in each country, joint field trips (5 Meeting days each) of the utilities concerned as well as the consultant preparing the Feasibility Study. Similarly, the Consultant shall discharge the WAPP Secretariat and concerned Ministries and utilities of all costs related to the organization of all meetings, seminars, workshops and field trips (including identification of provisional line routes, public consultations, public sensitization campaigns) in line with WAPP Secretariat practice, which shall include but not be limited to venue, simultaneous interpretation and full costs of participation of five (5) participants from each country (Project Manager from Utility, 1 Environmentalist from Utility, 1 Representative from Ministry in charge of Environment, 1 Representative from the national Agency in charge of rural electrification, 1 Representative from the Distribution Company) and three (3)

participants from WAPP Secretariat. For the Public Information and Sensitisation Campaign in each of the concerned countries, the Consultant shall note that 1 Representative from the Ministry in charge of energy shall also take part.

The Consultant shall note that the conduct of public consultations including Government and local administration Authorities, relevant national agencies, funding agencies, non-governmental organisations, communities impacted by the project, civil society, constitutes a Deliverable under this assignment. These public consultations shall be conducted throughout the entire study period and appropriately documented with among others, signed Minutes of Meeting, list of participants and photographs. Therefore, as part of the submissions of the Scoping Report, Line Route Study Report, ESIA Report, ESMP, RAP in their draft, provisional and final versions, the Consultant shall be required to submit as a separate annex, the signed minutes of meeting of all the public consultations conducted. The same shall apply for the scope of work relating to the Electrification of Communities/Towns/Villages.

The Consultant shall note that situations may arise where the authorities in charge of environmental protection and the funding agencies make supplementary comments on Final Reports. In these instances, the Consultant shall incorporate the comments into revised Final Reports and re-distribute. The Consultant shall also be required to accompany Funding Agencies during their site visits and/or Appraisal Missions and provide any clarifications required.

In submitting amended reports and to facilitate their review, the Consultant shall, as part of the submission, prepare a matrix that indicates among others, the comments that were made, the responses provided by the Consultant, and the page numbers of the amended report that contain the incorporated comments.

6.1. Reports, Presentation, Line Survey and Preparation of Maps

All reports, documentation, deliverables, maps and presentations by the Consultant shall be prepared in English and French and shall be in form and format acceptable to the WAPP Secretariat and the Funding Agency. All electronic versions of reports shall be submitted on USB and shall contain editable and non-editable versions of the Reports including all graphs, tables and schematics.

6.1.1. Reports and Presentation

➤ Inception Report

The Consultant shall present according to the Schedule above, an Inception Report that shall contain, inter alia, the work plan and methodology, work schedule, annotated comments of each report that shall be presented and delivered to the WAPP Secretariat, CI-ENERGIES and LEC. All electronic copies shall be on USB. The number of copies of the reports to be submitted shall be as follows:

- *Three (3) hard copies and one (1) electronic copy in English to be delivered to LEC.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Liberia*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*

- *Three (3) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Cote d'Ivoire.*
- *Six (6) hard copies and one (1) electronic copy in English, and Six (6) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

➤ Monthly Reports

The report shall summarise the Consultant's activities during the period under review. The reports shall be issued in English and French by the 10th calendar day of *each month* for activities conducted in the preceding month. The number of copies of the reports to be submitted shall be as follows:

- *Three (3) hard copies and one (1) electronic copy in English to be delivered to LEC.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Liberia*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Cote d'Ivoire.*
- *Five (5) hard copies and one (1) electronic copy in English, and Five (5) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

The Consultant shall also prepare and maintain a Schedule using Microsoft Project and effect monthly updating of the detail schedules demonstrating that the project is progressing in accordance with the contractual obligations. The updated schedule shall be submitted as part of the Monthly Report.

➤ Quarterly Reports:

The Consultant shall provide Quarterly Report. The Reports shall describe the major tasks which have been undertaken in the performance of the studies, milestones towards the studies' completion, and percentage completion of the studies as at the end of the Quarter. Financial data shall include photocopies of invoices from the Consultant as well as financial reports detailing expenditures of all funds and the daily rates of the Consultant, their hours worked and other direct costs. The reports shall be issued in English and French by the 10th calendar day after the end of the Quarter under review. The number of copies to the reports to be submitted shall be as follows:

- *Three (3) hard copies and one (1) electronic copy in English to be delivered to LEC.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Liberia*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Cote d'Ivoire.*
- *Five (5) hard copies and one (1) electronic copy in English, and Five (5) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

➤ Scoping Report

The Report shall be per country and shall be submitted as follows:

❖ *Draft Report:*

- *Three (3) hard copies and one (1) electronic copy in English to be delivered to LEC.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Liberia*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Cote d'Ivoire.*
- *Five (5) hard copies and one (1) electronic copy in English, and Five (5) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

❖ *Final Report:*

- *Ten (10) hard copies and one (1) electronic copy in English to be delivered to LEC.*
- *Five (5) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Liberia*
- *Ten (10) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Five (5) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Cote d'Ivoire.*
- *Five (5) hard copies and one (1) electronic copy in English, and Five (5) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

➤ Line Route Study Report

❖ *Draft Report on Provisional Line Route:*

- *Three (3) hard copies and one (1) electronic copy in English to be delivered to LEC.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Liberia*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Cote d'Ivoire.*
- *Five (5) hard copies and one (1) electronic copy in English, and Five (5) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

❖ *Final Report on Provisional Line Route:*

- *Three (3) hard copies and one (1) electronic copy in English to be delivered to LEC.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Liberia*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Cote d'Ivoire.*

- *Five (5) hard copies and one (1) electronic copy in English, and Five (5) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

❖ *Report on Final Line Route:*

- *Three (3) hard copies and one (1) electronic copy in English to be delivered to LEC.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Liberia*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Cote d'Ivoire.*
- *Five (5) hard copies and one (1) electronic copy in English, and Five (5) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

➤ Environmental and Social Impact Assessment Report

All versions of the report (Draft, Final) shall contain an Executive Summary of not more than 10 pages. The final document should incorporate comments made during the training program.

The final document should be delivered in a form (with cover page(s) and formatting) acceptable to the WAPP Secretariat, concerned utilities and Funding Agencies. The Report shall also contain an appendix recording the sessions of consultation that have been held with affected people and other stakeholders during the preparation of the report. The Report shall also contain in annex, the Final Report on the Provisional Line route.

The Report shall be submitted as follows:

❖ *Draft Report:*

- *Five (5) hard copies and one (1) electronic copy in English to be delivered to LEC.*
- *Five (5) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Liberia*
- *Five (5) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Five (5) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Cote d'Ivoire.*
- *Five (5) hard copies and one (1) electronic copy in English, and Five (5) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

❖ *Final Report:*

- *Twenty (20) hard copies and one (1) electronic copy in English to be delivered to LEC.*
- *Five (5) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Liberia*
- *Twenty (20) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Five (5) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Cote d'Ivoire.*

- *Five (5) hard copies and one (1) electronic copy in English, and Five (5) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

➤ Environmental & Social Management Plan (ESMP)

All versions of the report (Draft, Final) shall contain an Executive Summary of not more than 10 pages. The final document should be delivered in a form (with cover page(s) and formatting) acceptable to the WAPP Secretariat, concerned utilities and Funding Agencies. The Report shall also contain an appendix recording the sessions of consultation that have been held with affected people and other stakeholders during the preparation of the report. The final document should incorporate comments made during the training program.

The Report shall be submitted as follows:

❖ *Draft Report:*

- *Five (5) hard copies and one (1) electronic copy in English to be delivered to LEC.*
- *Five (5) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Liberia*
- *Five (5) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Five (5) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Cote d'Ivoire.*
- *Five (5) hard copies and one (1) electronic copy in English, and Five (5) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

❖ *Final Report:*

- *Twenty (20) hard copies and one (1) electronic copy in English to be delivered to LEC.*
- *Five (5) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Liberia*
- *Twenty (20) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Five (5) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Cote d'Ivoire.*
- *Five (5) hard copies and one (1) electronic copy in English, and Five (5) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

➤ Resettlement Action Plan (RAP)

All versions of the Report (Draft, Final) shall contain an Executive Summary of not more than 10 pages. The final document should be delivered in a form (with cover page(s) and formatting) acceptable to the WAPP Secretariat, concerned utilities and Funding Agencies. The Report shall also contain an appendix recording the sessions of consultation that have been held with affected people and other stakeholders during the preparation of the report. The final document should incorporate comments made during the training program.

The number of copies of the Reports to be submitted shall be as follows:

❖ *Draft Report:*

- *Five (5) hard copies and one (1) electronic copy in English to be delivered to LEC.*
- *Five (5) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Liberia*
- *Five (5) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Five (5) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Cote d'Ivoire.*
- *Five (5) hard copies and one (1) electronic copy in English, and Five (5) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

❖ *Final Report:*

- *Twenty (20) hard copies and one (1) electronic copy in English to be delivered to LEC.*
- *Five (5) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Liberia*
- *Twenty (20) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Five (5) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Cote d'Ivoire.*
- *Five (5) hard copies and one (1) electronic copy in English, and Five (5) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

➤ Non-technical Summary Report in Local Language.

The Consultant shall be required to prepare a non-technical summary report of the impact assessments in the local languages in the areas involved as mandated by the Guidelines of Funding Agencies. The report shall contain a separate section on the ESIA, a separate section on the ESMP, and a separate section on the RAP. The Consultant shall be advised by LEC in Liberia and CI-ENERGIES in Cote d'Ivoire on the local languages to be used.

The Consultant shall also be required to perform informative meetings with the communities impacted by the project in all of the concerned countries after the Impact Assessment Study Final Report has been approved. The informative meetings with the communities shall be held on dates to be defined by the WAPP Secretariat and national utilities.

The report shall be submitted as follows:

❖ *Draft Report:*

- *Three (3) hard copies and one (1) electronic copy in English to be delivered to LEC.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Liberia*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Cote d'Ivoire.*
- *Five (5) hard copies and one (1) electronic copy in English, and Five (5) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

❖ *Final Report:*

- *Three (3) hard copies and one (1) electronic copy in English to be delivered to LEC.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Liberia*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Cote d'Ivoire.*
- *Five (5) hard copies and one (1) electronic copy in English, and Five (5) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

➤ Non-technical Summary Report.

The Consultant shall be required to prepare a non-technical summary report of the impact assessments in the areas involved that shall be suitable for presentation to the Boards of Directors of the concerned utilities and Funding Agencies. The report shall cover all the countries and contain a separate section on the Line Route, a separate section on ESIA, a separate section on the ESMP, and a separate section on the RAP. The Report shall be delivered in a form (with cover page(s) and formatting) acceptable to the WAPP Secretariat, concerned utilities and Funding Agencies.

The number of copies of the reports to be submitted shall be as follows:

❖ *Draft Report:*

- *Three (3) hard copies and one (1) electronic copy in English to be delivered to LEC.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Liberia*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Cote d'Ivoire.*
- *Five (5) hard copies and one (1) electronic copy in English, and Five (5) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

❖ *Final Report:*

- *Three (3) hard copies and one (1) electronic copy in English to be delivered to LEC.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Liberia*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Cote d'Ivoire.*
- *Five (5) hard copies and one (1) electronic copy in English, and Five (5) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

➤ Detail Survey Report

The report shall be per line route segment within each country. The number of copies of the Detail Survey reports and the submission of all computation works, field books, drawings, maps etc. shall be as follows:

❖ *Draft Report:*

- *Three (3) hard copies and one (1) electronic copy in English to be delivered to LEC.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Liberia*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Cote d'Ivoire.*
- *Five (5) hard copies and one (1) electronic copy in English, and Five (5) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

❖ *Final Report:*

- *Three (3) hard copies and one (1) electronic copy in English to be delivered to LEC.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Liberia*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Cote d'Ivoire.*
- *Five (5) hard copies and one (1) electronic copy in English, and Five (5) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

➤ Translated Final Scoping, ESIA, ESMP, RAP, and Non-Technical Summary Reports

The number of copies of the reports to be submitted shall be as follows:

- *Three (3) hard copies and one (1) electronic copy in English to be delivered to LEC.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Liberia*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Cote d'Ivoire.*
- *Five (5) hard copies and one (1) electronic copy in English, and Five (5) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

➤ Public Information and Sensitisation Campaign

The number of copies of the Reports to be submitted shall be as follows:

❖ *Draft Report:*

- *One (1) electronic copy in English to be delivered to LEC.*
- *One (1) electronic copy in French to be delivered to CI-ENERGIES.*

- *One (1) electronic copy in English, and One (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

❖ *Final Report:*

- *Three (3) hard copies and one (1) electronic copy in English to be delivered to LEC.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Liberia*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Cote d'Ivoire.*
- *Five (5) hard copies and one (1) electronic copy in English, and Five (5) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

➤ Project Completion Report

The Consultant shall submit a draft Project Completion Report that summaries among others, the activities undertaken by the Consultant within the framework of the Study, Deliverables submitted, disbursements received, issues encountered, and lessons learnt to be taken into consideration in future studies.

The number of copies of the documents to be submitted shall be as follows:

❖ *Draft Project Completion Report:*

- *Three (3) hard copies and one (1) electronic copy in English to be delivered to LEC.*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Five (5) hard copies and one (1) electronic copy in English, and Five (5) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

❖ *Final Project Completion Report:*

- *Three (3) hard copies and one (1) electronic copy in English to be delivered to LEC.*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *Five (5) hard copies and one (1) electronic copy in English, and Five (5) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

In addition to the above highlighted, the Consultant shall note that the draft and final Project Completion Reports shall be delivered in a form, formatting and content acceptable to the Client and the Funding Agency(ies).

➤ Electrification of Communities/Towns/Villages

The Consultant shall submit the Reports under this part of the Assignment as follows:

- *Identification of Communities/Towns/Villages along Line route and around substations*
 - Draft Report:

- *Five (5) hard copies and one (1) electronic copy in English to be delivered to LEC.*
 - *Five (5) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Liberia.*
 - *Five (5) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
 - *Five (5) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Côte d'Ivoire*
 - *Eight (8) hard copies and one (1) electronic copy in English, and Eight (8) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*
- Final Report
 - *Five (5) hard copies and one (1) electronic copy in English to be delivered to LEC.*
 - *Five (5) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Liberia.*
 - *Five (5) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
 - *Five (5) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Côte d'Ivoire*
 - *Eight (8) hard copies and one (1) electronic copy in English, and Eight (8) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*
- *ESIA*
 - Draft Report:
 - *Five (5) hard copies and one (1) electronic copy in English to be delivered to LEC.*
 - *Five (5) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Liberia.*
 - *Five (5) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
 - *Five (5) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Côte d'Ivoire*
 - *Eight (8) hard copies and one (1) electronic copy in English, and Eight (8) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*
 - Final Report
 - *Five (5) hard copies and one (1) electronic copy in English to be delivered to LEC.*
 - *Five (5) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Liberia.*
 - *Five (5) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
 - *Five (5) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Côte d'Ivoire*
 - *Eight (8) hard copies and one (1) electronic copy in English, and Eight (8) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*
 - *ESMP*
 - Draft Report:

- *Five (5) hard copies and one (1) electronic copy in English to be delivered to LEC.*
 - *Five (5) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Liberia.*
 - *Five (5) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
 - *Five (5) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Côte d'Ivoire*
 - *Eight (8) hard copies and one (1) electronic copy in English, and Eight (8) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*
- Final Report
 - *Five (5) hard copies and one (1) electronic copy in English to be delivered to LEC.*
 - *Five (5) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Liberia.*
 - *Five (5) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
 - *Five (5) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Côte d'Ivoire*
 - *Eight (8) hard copies and one (1) electronic copy in English, and Eight (8) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*
- *RAP*
 - Draft Report:
 - *Five (5) hard copies and one (1) electronic copy in English to be delivered to LEC.*
 - *Five (5) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Liberia.*
 - *Five (5) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
 - *Five (5) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Côte d'Ivoire*
 - *Eight (8) hard copies and one (1) electronic copy in English, and Eight (8) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*
 - Final Report
 - *Five (5) hard copies and one (1) electronic copy in English to be delivered to LEC.*
 - *Five (5) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Liberia.*
 - *Five (5) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
 - *Five (5) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Côte d'Ivoire*
 - *Eight (8) hard copies and one (1) electronic copy in English, and Eight (8) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*
- *Non-technical Summary Report*

- *Five (5) hard copies and one (1) electronic copy in English to be delivered to LEC.*
 - *Five (5) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Liberia.*
 - *Five (5) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
 - *Five (5) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Côte d'Ivoire*
 - *Eight (8) hard copies and one (1) electronic copy in English, and Eight (8) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*
- *Non-technical Summary Report in local language*
 - *Five (5) hard copies and one (1) electronic copy in English to be delivered to LEC.*
 - *Five (5) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Liberia.*
 - *Five (5) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
 - *Five (5) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Côte d'Ivoire*
 - *Eight (8) hard copies and one (1) electronic copy in English, and Eight (8) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*
- *Public Information and Sensitization Campaigns*
 - *Draft Report:*
 - *Three (3) hard copies and one (1) electronic copy in English to be delivered to LEC.*
 - *Three (3) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Liberia.*
 - *Three (3) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
 - *Three (3) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Côte d'Ivoire*
 - *Three (3) hard copies and one (1) electronic copy in English, and Three (3) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*
 - *Final Report*
 - *Five (5) hard copies and one (1) electronic copy in English to be delivered to LEC.*
 - *Five (5) hard copies and one (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Liberia.*
 - *Five (5) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
 - *Five (5) hard copies and one (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Côte d'Ivoire*
 - *Eight (8) hard copies and one (1) electronic copy in English, and Eight (8) hard copies and one (1) electronic copy in French, to be delivered to the WAPP Secretariat.*

6.1.2. Survey Maps and Drawings

In addition to the above requirements, one (1) hard copy as well as three (3) USBs in the latest stable version of AUTOCAD of each map and drawing shall be submitted to each of the above-indicated Ministries in charge of energy, utilities and WAPP Secretariat. The hard copy should be on Unotrace drafting film - 75 micron - 0.003” paper (transfer paper). All costs associated with the procurement and preparation of the maps and drawings shall be deemed to be included in the Financial Proposal of the Consultant.

7. KEY PERSONNEL

The minimum required experience of the key staff is:

- (a) Title : **Project Manager**
 Expected Level Of Effort (Person-Month) :
 Years of Professional Experience : 15
 Participation in among others : Kick off meeting, Scoping report validation meeting, Field trip to inspect Provisional Line Route, Provisional Line Route Report Validation Meeting, Meeting to examine Draft ESIA, ESMP & RAP Reports, Donor Consultation Meetings, Training Workshops, Meetings at national level to adopt reports, Public Information and Sensitisation in each country, Meeting of Ministers in charge of Energy.
 Specific Expertise : Conducted ESIA studies and prepared Resettlement Action Plans in the same capacity on at least three (3) 161 kV and above transmission line projects that included Line Route Studies. The cost of the study should be valued at least US\$1,000,000 one of which should be in Africa. Working knowledge of English and French is an advantage
- (b) Title : **Geodetic Engineer / Surveyor**
 Expected Level Of Effort (Person-Month) :
 Years of Professional Experience : 10
 Participation in among others : Kick off meeting, Scoping report validation meeting, One of the Donor Consultation Meetings, Training, Public Information and Sensitisation in each country.
 Specific Expertise : Surveyed or managed the survey of line routes of at least three (3) 161 kV and above transmission line projects. Implemented projects which lead to the displacement and resettlement of at least 3000 people each, one of which should be in Africa. Working knowledge of English and French is an advantage
- (c) Title : **Transmission Line Engineer**
 Expected Level Of Effort (Person-Month) :
 Years of Professional Experience : 10

- Participation in among others : Kick off meeting, Scoping report validation meeting, Field trip to inspect Provisional Line Route, Provisional Line Route Report Validation Meeting, One of the Donor Consultation Meetings.
- Specific Expertise : Involved in the implementation of at least three (3) 161 kV and above transmission line projects in the same capacity that include Feasibility Studies, demonstrated experience in the implementation of High Voltage Substation Projects is also required. Preliminary Designs and Tender documents preparation. The projects implemented should be at least 200 km long. Working knowledge of English and French is an advantage
- (d) Title : **Environmental Management Specialist**
- Expected Level Of Effort (Person-Month) :
- Years of Professional Experience : 12
- Participation in among others : Kick off meeting, Scoping report validation meeting, Field trip to inspect Provisional Line Route, Provisional Line Route Report Validation Meeting, Meeting to examine Draft ESIA, ESMP & RAP Reports, Donor Consultation Meetings, Training Workshops, Meetings at national level to adopt reports, Meeting of Ministers in charge of Energy.
- Specific Expertise : Conducted ESIA studies in the same capacity on at least three (3) 161 kV and above transmission line projects one of which should include the development of an Environmental Management Plan and should also be in Africa. Working knowledge of English and French is an advantage
Conducted ESIA studies in at least three (3) power transmission lines at 161 kV projects of at least 200 km length. The ESIA work including PGES and PAR with the displacement and resettlement of at least 3,000 or more people, one of whom should be in Africa is required.
- (e) Title : **Social Safeguards Specialist**
- Expected Level Of Effort (Person-Month) :
- Years of Professional Experience : 12
- Participation in among others : Kick off meeting, Scoping report validation meeting, Field trip to inspect Provisional Line Route, Provisional Line Route Report Validation Meeting, Meeting to examine Draft ESIA, ESMP & RAP Reports, Donor Consultation Meetings, Training Workshops, Meetings at national level to adopt reports, Meeting of Ministers in charge of Energy.
- Specific Expertise : Conducted Sociological and anthropological investigations. Involved in the development of Resettlement Action Plans in the same capacity for at least three (3) 161 kV and above transmission line projects, one of which should be in Africa. Working knowledge of English and French is an advantage

- (f) Title : **Value / Property Assessment Specialist**
- Expected Level Of Effort (Person-Month) :
- Years of Professional Experience : 8
- Participation in among others : Kick off meeting, Field trip to inspect Provisional Line Route, Provisional Line Route Report Validation Meeting, Two of the Donor Consultation Meetings, Public Information and Sensitisation in each country.
- Specific Expertise : Conducted inventory and valuation of properties and fixed assets. Developed Property Impact Records for at least two (2) 161 kV of at least 200 km in length and above transmission line projects that included Resettlement Action Plans, one of which should be in Africa. Working knowledge of English and French is an advantage

- (g) Title : **Biologist (Specialist in fauna and flora)**
 Expected Level Of Effort (Person-Month) :
 Years of Professional Experience : 8
 Participation in among others : Kick off meeting, Scoping report validation meeting, Field trip to inspect Provisional Line Route, Provisional Line Route Report Validation Meeting, Meeting to examine Draft ESIA, ESMP & RAP Reports, One of the Donor Consultation Meetings.
 Specific Expertise : Conducted ecological studies in projects that required environmental permitting. Involved in the development of ESIA studies in the same capacity for at least three (3) 161 kV and above transmission line projects that included of at least 200 km Environmental and Social Management Plans, one of which should be in Africa. Working knowledge of English and French is an advantage

For the scope relating to the Electrification of communities/towns/villages, the dedicated team shall comprise:

- (h) Title : **Value / Property Assessment Specialist**
 Expected Level Of Effort (Person-Month) :
 Years of Professional Experience : 8
 Participation in among others : Field trip to identify provisional routes for medium voltage networks and substation locations, preparation of RAP, meeting to review draft RAP, Public Information and Sensitisation in each country.
 Specific Expertise : Conducted inventory and valuation of properties and fixed assets. Developed Property Impact Records for at least two (2) 33 kV and above distribution line projects that included Resettlement Action Plans, one of which should be in Africa. Working knowledge of English and French is an advantage

- (i) Title : **Geodetic Engineer / Surveyor**
 Expected Level Of Effort (Person-Month) :
 Years of Professional Experience : 10
 Participation in among others : Preparation of Scoping report, participation in scoping report validation meetings, identification of provisional routes for medium voltage networks and substation locations, preparation of RAP report, participation in RAP report validation meetings, Public Information and Sensitisation in each country.

- Specific Expertise : Surveyed or managed the survey of distribution line routes of at least three (3) 33 kV and above transmission line projects, one of which should be in Africa. Working knowledge of English and French is an advantage
- (j) Title : **Distribution Engineer**
 Expected Level Of Effort (Person-Month) :
 Years of Professional Experience : 10
 Participation in among others Identification of provisional routes for medium voltage networks and substation locations, preparation of ESMP, participation in meeting to adopt ESMP Report, Public Information and Sensitisation in each country.
 Specific Expertise : Involved in the design of at least three (3) 33 kV and above distribution line projects, one of which should be in Africa. Working knowledge of English and French is an advantage. Demonstrated expertise in shield-wire electrification schemes shall also be an advantage.
- (k) Title : **Environmental Management Specialist**
 Expected Level Of Effort (Person-Month) :
 Years of Professional Experience : 12
 Participation in among others Identification of provisional routes for medium voltage networks and substation locations, preparation of ESMP, participation in meeting to adopt ESMP Report, Public Information and Sensitisation in each country.
 Specific Expertise : Conducted ESIA studies in the same capacity on at least three (3) 33 kV and above distribution line projects one of which should include the development of an Environmental Management Plan and should also be in Africa. Working knowledge of English and French is an advantage
- (l) Title : **Social Safeguards Specialist**
 Expected Level Of Effort (Person-Month) :
 Years of Professional Experience : 12
 Participation in among others Identification of provisional routes for medium voltage networks and substation locations, preparation of ESIA, ESMP and RAP Reports, participation in meetings to adopt ESIA, ESMP and RAP Reports, Public Information and Sensitisation in each country,
 Specific Expertise : Conducted Sociological and anthropological investigations. Involved in the development of Resettlement Action Plans in the same capacity for at least three (3) 33 kV and above distribution line projects, one of which should be in Africa. Working knowledge of English and French is an advantage

8. INFORMATION TO BE PROVIDED BY THE WAPP SECRETARIAT, CI-ENERGIES and LEC

The WAPP Secretariat, CI-ENERGIES and LEC shall provide the following:

- Information on the existing electricity networks in each country.
- ECOWAS Master Plan for the Development of Regional Power Generation and Transmission Infrastructure 2019 - 2033

9. REPORTING REQUIREMENTS

The Consultant shall report to the WAPP Secretariat. However, each of the utilities involved, CI-ENERGIES and LEC, shall appoint a Project Manager who shall co-ordinate the activities of the Consultant in Cote d'Ivoire and Liberia respectively.

All correspondences on the project from the Consultant addressed to any party should be copied to the other two (2#) parties for their information.

10. CONDUCT OF WORK

Close coordination among the Consultant, WAPP, CI-ENERGIES, LEC and the Feasibility Study shall be required.

The Consultant shall provide overall management of all aspects of the work / services. The Consultant shall nominate a Project Manager and a Deputy Project Manager (during all times of unavailability of the Project Manager) to liaise with the WAPP Secretariat, CI-ENERGIES and LEC.

The Consultant shall work closely with the designated staff of the WAPP Secretariat, CI-ENERGIES and LEC.

The Consultant shall participate in meetings with the WAPP Secretariat, CI-ENERGIES and LEC.

The Consultant shall implement its internal quality control and assurance procedures during the execution of the Contract and shall demonstrate that they are being applied.

11. PARTICIPATION OF WAPP, CI-ENERGIES AND LEC

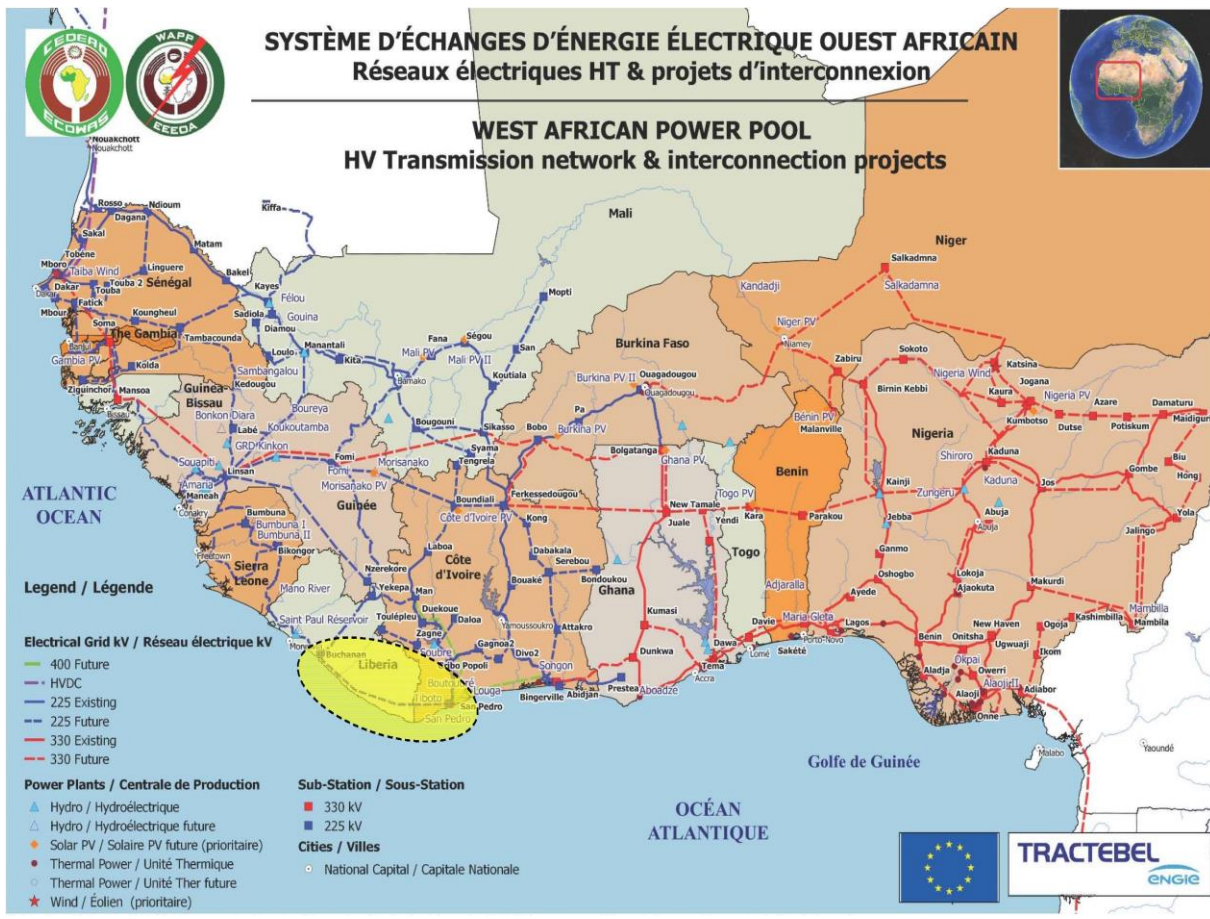
The WAPP Secretariat, CI-ENERGIES and LEC shall provide to the contracted Consultant if required;

- One (1) Office, suitably furnished and with air conditioning. All related utility consumption charges shall be the responsibility of the Consultant.
- Arrangements for meetings with representatives of WAPP, CI-ENERGIES and LEC.

The Consultant shall make his own arrangements in coordination with the WAPP Secretariat for whatever services that the WAPP Secretariat cannot provide.

APPENDICES
APPENDIX 1: MAP OF PROPOSED INTERCONNECTION
(TO BE VALIDATED BY LINE ROUTE STUDY)

This map is only indicative. The actual route and distance of the line, together with the location of the substations, shall be based on the outcomes of the Line Route and ESIA Study



APPENDIX 2: SAFETY RULES FOR THE FELLING TREES

The following precautions shall be observed while felling trees:

- In locations where ordinary felling operations might cause damage to property including transmission lines, trees shall be suitably dismembered and felled using block and tackle when necessary.
- Whenever practicable, trees shall be felled directly away from a power or telephone line after having removed all limbs that might contact the line or cause damage to other trees or property. If the tree must be felled toward a line it shall be topped low enough to clear all conductors, etc.
- Pulling down trees or lowering limbs by means of attachment ropes connected to a moving motor vehicles is prohibited. The tackle must be anchored to a fixed object such as a suitable tree, a truck with its wheels blocked or a stake holdfast.
- Guy ropes shall be used on all trees that are sufficiently large to cause damage should they fall in any direction other than that intended. The guy ropes shall be able to stand well outside the striking distance of the tree.
- Anchors for guy ropes shall be installed in such a position that person handling the guy ropes shall be able to stand well outside the striking distance of the tree.
- Before a tree is felled, men other than those actually engaged in cutting the tree shall keep clear of any area within the possible striking distance of the tree. Men shall not be allowed to remain in nearby trees if there is any doubt as their safety.
- Ample warning shall always be given before a tree is expected to fall and the workmen must stand clear in case the tree springs from the stump while falling.
- Brush and other debris or equipment that would hamper free movement when using sharp tools or when getting clear in case of emergency shall always be cleared away.
- Ordinary, trees shall be notched in the direction towards which they are to fall, and sufficient holding wood shall be left to provide control.
- Under no circumstances shall a partially cut tree be left standing during a lunch hour or overnight.
- Before commencing the backcut on a tree, one or more pieces of log chain or guy cable shall be placed tightly around the tree if the tree is split, leaning or has a twin trunk that is likely to split. One chain or cable shall be placed above and as close as practical to the backcut to prevent separation of the trunk.
- The Consultant shall satisfy himself that any employee permitted to operate a power chain saw is qualified to do so.
- Before the felling of any tree which may get into contact with the conductors on the existing lines, the nearest manned substation shall be advised. This substation should be contacted in the event of any mishap or problem during the felling.

APPENDIX 3: GUIDELINES FOR THE PREPARATION OF

RESETTLEMENT ACTION PLAN

The following sections of the RAP correspond to the scope of work to be completed by the Consultant.

Description of the project: General description of the affected areas.

Potential Impacts: Identification of the: (i) components or activities that require resettlement or restriction of access; (ii) zone of impact of components or activities; (iii) alternatives considered to avoid or minimize resettlement or restricted access; and (iv) mechanisms established to minimize resettlement, displacement, and restricted access, to the extent possible, during project implementation.

Objectives: The main objectives of the resettlement program as these apply to the Interconnection Project should be described in relation to the project.

Socio-economic studies: The findings of socio-economic studies to be conducted with the involvement of potentially affected people shall be needed. These generally include the results of a census of the PAPs covering:

- Current occupants of the affected area as a basis for design of the RAP and to clearly set a cut-off date, the purpose of which is to exclude subsequent inflows of people from eligibility for compensation and resettlement assistance;
- Standard characteristics of displaced households, including a description of production systems, labor, and household organization; and baseline information on livelihoods (including, as relevant, production levels and income derived from both formal and informal economic activities) and standards of living (including health status) of the displaced population;
- Magnitude of the expected loss, total or partial, of assets, and the extent of displacement, physical or economic;
- Information on vulnerable groups or persons, for whom special provisions may have to be made; and
- Provisions to update information on the displaced people's livelihoods and standards of living at regular intervals so that the latest information is available at the time of their displacement, and to measure impacts (or changes) in their livelihood and living conditions.

There may be other studies that the RAP can draw upon, such as those describing the following, as needed:

- Land tenure, property, and transfer systems, including an inventory of common property natural resources from which people derive their livelihoods and sustenance, non-title-based usufruct systems (including fishing, grazing, or use of forest areas) governed by local recognized land allocation mechanisms, and any issues raised by different tenure systems in the sub project area;
- Patterns of social interaction in the affected communities, including social support systems, and how they shall be affected by the sub-project;
- Public infrastructure and social services that shall be affected; and
- Social and cultural characteristics of displaced communities, and their host communities, including a description of formal and informal institutions. These may cover, for example, community organizations; cultural, social or ritual groups; and non-governmental organizations (NGOs) that may be relevant to the consultation strategy and to designing and implementing the resettlement activities.

Legal Framework: The analysis of the legal and institutional framework in Cote d'Ivoire and Liberia should cover the following:

- Scope of existing land and property laws governing resources, including state-owned lands under eminent domain and the nature of compensation associated with valuation methodologies; land market; mode and timing of payments, etc;

- Applicable legal and administrative procedures, including a description of the grievance procedures and remedies available to PAPs in the judicial process and the execution of these procedures, including any available alternative dispute resolution mechanisms that may be relevant to implementation of the RAP for the sub-project;
- Relevant laws (including customary and traditional law) governing land tenure, valuation of assets and losses, compensation, and natural resource usage rights, customary personal law; communal laws, etc related to displacement and resettlement, and environmental laws and social welfare legislation;
- Laws and regulations relating to the agencies responsible for implementing resettlement activities in the sub-projects;
- Gaps, if any, between local laws covering resettlement and the Bank's resettlement policy, and the mechanisms for addressing such gaps; and
- Legal steps necessary to ensure the effective implementation of RAP activities in the sub-projects, including, as appropriate, a process for recognizing claims to legal rights to land, including claims that derive from customary and traditional usage, etc and which are specific to the sub-projects.

The institutional framework governing RAP implementation generally covers:

- Agencies and offices responsible for resettlement activities and civil society groups like NGOs that may have a role in RAP implementation;
- Institutional capacities of these agencies, offices, and civil society groups in carrying out RAP implementation, monitoring, and evaluation; and
- Activities for enhancing the institutional capacities of agencies, offices, and civil society groups, especially in the consultation and monitoring processes.

Eligibility and entitlements: Definition of displaced persons or PAPS and criteria for determining their eligibility for compensation and other resettlement assistance, including relevant cut-off dates. This is based on the definition of the Transmission Line (TL) right-of-way (RoW), which is specified by the Governments of Cote d'Ivoire and Liberia as XX meters horizontal and XX meters vertical clearance from the closest physical structure to the TL conductor. Structures below this vertical clearance, and those that do not hamper access to the TL, may remain under the TL provided that agreed and appropriate conditions are met (e.g. no burning; no planting of crops or trees that would exceed the vertical clearance; access boundaries around the 5 meter perimeter of each tower). Land needed for the sub-station and access road shall need to be cleared as part of the RoW.

Valuation of and compensation for losses: The methodology to be used for valuing losses, or damages, for the purpose of determining their replacement costs; and a description of the proposed types and levels of compensation consistent with national and local laws and measures, as necessary, to ensure that these are based on acceptable values (e.g. market rates).

Resettlement Measures: A description of the compensation and other resettlement measures that shall assist each category of eligible PAPs to achieve the resettlement objectives. Aside from compensation, these measures should include programs for livelihood restoration, grievance mechanisms, consultations, and disclosure of information.

Site selection, site preparation, and relocation: If a resettlement site is an option, describe the alternative relocation sites as follows:

- Institutional and technical arrangements for identifying and preparing relocation sites, whether rural or urban, for which a combination of productive potential, locational advantages, and other

factors is at least comparable to the advantages of the old sites, with an estimate of the time needed to acquire and transfer land and ancillary resources;

- Any measures necessary to prevent land speculation or influx of eligible persons at the selected sites;
- Procedures for physical relocation under the project, including timetables for site preparation and transfer; and
- Legal arrangements for recognizing (or regularizing) tenure and transferring titles to resettlers.

Housing, Infrastructure, and Social Services: Plans to provide (or to finance resettler's provision of) housing, infrastructure (e.g. water supply, feeder roads), and social services to host populations; and any other necessary site development, engineering, and architectural designs for these facilities should be described.

Environmental Protection and Management. A description of the boundaries of the relocation area is needed. This description includes an assessment of the environmental impacts of the proposed resettlement and measures to mitigate and manage these impacts (coordinated as appropriate with the environmental assessment of the main investment requiring the resettlement).

Community Participation: Consistent with the World Bank's policy on consultation and disclosure, a strategy for consultation with, and participation of, PAPs and host communities, should include:

- Description of the strategy for consultation with and participation of PAPs and hosts in the design and implementation of resettlement activities;
- Summary of the consultations and how PAPs' views were taken into account in preparing the resettlement plan; and
- Review of resettlement alternatives presented and the choices made by PAPs regarding options available to them, including choices related to forms of compensation and resettlement assistance, to relocating as individual families or as parts of pre-existing communities or kinship groups, to sustaining existing patterns of group organization, and to retaining access to cultural property (e.g. places of worship, pilgrimage centers, cemeteries); and
- Arrangements on how PAPs can communicate their concerns to project authorities throughout planning and implementation, and measures to ensure that vulnerable groups (including indigenous peoples, ethnic minorities, landless, children and youth, and women) are adequately represented.

The consultations should cover measures to mitigate the impact of resettlement on any host communities, including:

- Consultations with host communities and local governments;
- Arrangements for prompt tendering of any payment due the hosts for land or other assets provided to PAPs;
- Conflict resolution involving PAPs and host communities; and
- Additional services (e.g. education, water, health, and production services) in host communities to make them at least comparable to services available to PAPs.

Grievance procedures: The RAP should provide mechanisms for ensuring that an affordable and accessible procedure is in place for third-party settlement of disputes arising from resettlement. These mechanisms should take into account the availability of judicial and legal services, as well as community and traditional dispute settlement mechanisms.

RAP implementation responsibilities: The RAP should be clear about the implementation responsibilities of various agencies, offices, and local representatives. These responsibilities should cover (i) delivery of RAP compensation and rehabilitation measures and provision of services; (ii) appropriate coordination between agencies and jurisdictions involved in RAP implementation; and (iii)

measures (including technical assistance) needed to strengthen the implementing agencies' capacities of responsibility for managing facilities and services provided under the project and for transferring to PAPs some responsibilities related to RAP components (e.g. community-based livelihood restoration; participatory monitoring; etc).

Implementation Schedule: An implementation schedule covering all RAP activities from preparation, implementation, and monitoring and evaluation should be included. These should identify the target dates for delivery of benefits to resettlers and hosts and a clearly defined closing date. The schedule should indicate how the RAP activities are linked to the implementation of the overall project.

Costs and budget: The RAP for the specific sub-projects should provide detailed (itemized) cost estimates for all RAP activities, including allowances for inflation, population growth, and other contingencies; timetable for expenditures; sources of funds; and arrangements for timely flow of funds. These should include other fiduciary arrangements consistent with the rest of the project governing financial management and procurement.

Monitoring and evaluation: Arrangements for monitoring and evaluation of RAP activities by the implementing agency, and the independent monitoring of these activities, should be included in the RAP section on monitoring and evaluation. The final evaluation should be done by an independent monitor or agency to measure RAP outcomes and impacts on PAPs' livelihood and living conditions.

The World Bank has examples of performance monitoring indicators to measure inputs, outputs, and outcomes for RAP activities; involvement of PAPS in the monitoring process; evaluation of the impact of RAP activities over a reasonable period after resettlement and compensation, and using the results of RAP impact monitoring to guide subsequent implementation.