

*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



330 kV WAPP NIGERIA – BENIN – TOGO – GHANA - CÔTE D'IVOIRE
DOUBLE CIRCUIT MEDIAN INTERCONNECTION PROJECT

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

July 2019

List of Abbreviations

AFLS	Automatic Frequency Load Shedding
CC	Combined Cycle
CEB	Communauté Electrique du Bénin
CEET	Compagnie Energie Electrique du Togo
CI-ENERGIES	Côte d'Ivoire Energies
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
GRIDCo	Ghana Grid Company
MALS	Manual Activated Load Shedding
MDR	Momentary Disturbance Reserve
OPGW	Optical Ground Wire
PHCN	Power Holding Company of Nigeria
RAP	Resettlement Action Plan
ROW	Right-Of-Way
SBEE	Société Béninoise d'Eau et d'Electricité
SCADA	Supervisory Control and Data Acquisition Systems
TCN	Transmission Company of Nigeria
TOR	Terms Of Reference
WAPP	West African Power Pool

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WEST AFRICAN POWER POOL (WAPP) SECRETARIAT
330 kV WAPP NIGERIA – BENIN – TOGO – GHANA-CÔTE D’IVOIRE
DOUBLE CIRCUIT MEDIAN INTERCONNECTION 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 have commenced preparatory works towards the implementation of the following priority interconnection projects:

- 330 kV Volta (Ghana) – Lome ‘C’ (Togo) - Sakété (Benin) Interconnection project;
- 330 kV Nigeria – Togo/Benin Interconnection Reinforcement Project;
- 330 kV Nigeria – Niger – Togo/Benin – Burkina Interconnection Project;
- 330 kV Côte d’Ivoire – Ghana Interconnection Reinforcement Project.

The WAPP Secretariat on behalf of the Transmission Company of Nigeria (TCN), Communauté Electrique du Bénin (CEB) of Benin & Togo, Ghana Grid Company (GRIDCo) of Ghana and Côte d’Ivoire Énergies (CI-ENERGIES) of Côte d’Ivoire 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 the 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 sub-programs to be developed is the WAPP Median Transmission Backbone (MTB), which seeks to establish a robust 330 kV transmission link from Shiroro in Nigeria to Ferkessedougou in Côte d'Ivoire passing through Zungeru and Kainji in Nigeria as well as Parakou in Benin, Kara in Togo, Yendi and Tamale in Ghana.

In order to increase the reliability and stability of power exchanges among the ECOWAS coastal Member States of Nigeria, Benin, Togo, Ghana, Côte d'Ivoire and beyond, the ECOWAS Master Plan has re-affirmed as priority the implementation of a second interconnection line among these countries that shall also serve to render more optimal the power systems of the concerned national power utilities.

In addition, this second interconnection line shall also increase reliability (n-1) on the WAPP interconnected system given that it shall represent an alternate path to the 330 kV WAPP Coastal Transmission Backbone for power exchange among the countries as well as the 330 kV WAPP Northern Corridor Interconnection that is among Nigeria, Niger, Tog/Benin and Burkina. 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.

Furthermore, the realisation of the 330 kV WAPP Nigeria – Benin – Togo – Ghana - Côte d'Ivoire Double Circuit Median Interconnection Project shall permit the further exchange of low cost and clean power within the market given that it shall emanate from the 600 MW Shiroro Hydropower Plant in Nigeria, pass through the 700 MW Zungeru Hydropower Plant and the 760 MW Kainji Hydropower Plant both in Nigeria, and catalyse the development of the 87 MW Juale Hydropower Project in Ghana thereby increasing opportunities for trade in West Africa.

In addition, the region's renewed drive to significantly augment the portion of new 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.

The WAPP Secretariat, TCN, CEB, GRIDCo and CI-ENERGIES therefore intend to undertake a project that shall comprise the construction of a 330 kV double circuit high voltage transmission line from Shiroro in Nigeria to Ferkessedougou in Côte d'Ivoire passing through Zungeru and Kainji in Nigeria as well as Parakou in Benin, Kara in Togo and Yendi and Tamale in Ghana, with associated high voltage substations. This project, which would greatly facilitate the power exchanges among the countries in the West African

sub-region, is known as the **330 kV Nigeria – Benin – Togo – Ghana - Côte d'Ivoire Double Circuit Median Interconnection 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 would be executed in Nigeria, Benin, Togo, Ghana and Côte d'Ivoire, shall indicatively result in the following among others:

- Construction of approximately 1,600 km of 330 kV high voltage double circuit transmission line;
- Extension of/or the construction of a new high voltage substation at Shiroro (Nigeria) or environ;
- Extension of/or the construction of a new high voltage substation at Zungeru (Nigeria) or environ;
- Extension of/or the construction of a new high voltage substation at Kainji (Nigeria) or environ;
- Extension of/or the construction of a new high voltage substation at Parakou (Benin) or environ;
- Extension of / or the construction of a new high voltage substation in Kara (Togo) or environ;
- Extension of / or the construction of a new high voltage substation in Yendi (Ghana) or environ;
- Extension of / or the construction of a new high voltage substation in Tamale (Ghana) or environ;
- Extension of / or the construction of a new high voltage substation in Ferkessedougou (Côte d'Ivoire) 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 - TCN (Nigeria), CEB (Togo-Benin), GRIDCo (Ghana), and CI-ENERGIES (Cote d'Ivoire) 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, European Union Directives, African Development Bank, Agence Française de Développement, and Kredietanstalt für Wiederaufbau (KfW). In cases of contradiction, the most stringent requirements shall apply. The Consultant shall work very closely with the WAPP Secretariat, TCN, CEB, GRIDCo and CI-ENERGIES to determine the optimal locations for the 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 Studies. 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. Transmission Company of Nigeria

Electricity production and supply in Nigeria had been a monopoly of the federal owned Electric utility body known as National Electric Power Authority (NEPA). NEPA was charged with the responsibility for the generation, transmission, distribution and sale of electricity to customers and was run as a vertically integrated company. On 1st July 2005, NEPA was renamed Power Holding Company of Nigeria (PHCN) following the signing into law of the Electric Power Sector Act of 2005.

The Power Sector reforms of 2005 led to the unbundling of PHCN into eighteen (18) successor companies comprising six (6) Generation Companies, one (1) Transmission Company and eleven (11) Distribution Companies. The sector has also been deregulated leading to private sector participation in the generation sector and a number of IPPs are in operation in the country today. The Transmission Company of Nigeria (TCN), responsible for transmission services, has its own management.

The Nigerian Electricity Regulatory commission (NERC) had also been established in line with the Reform programmes. The NERC was established under the Nigerian Electric Power Sector Reform Act, and was passed into law in March 2005 to among others ensure orderly development of a competitive power market and promote competitive and private sector participation in the sector.

The total installed capacity in Nigeria shall be 13,473.25 MW when the National Integrated Power Project (NIPP) is completed. This was made up of 1,938.40 MW from Hydro sources (generated from the Kainji, Jebba and Shiroro hydropower plants), 5,237.6 MW from thermal sources generated from the Egbin, Sapele, Afam I-IV, Delta, Geregu, Omotosho and Olorunsogo thermal plants. 1526.25MW was generated by IPPs from Ajaokuta, Afam IV Okpai, A.E.S, Omoku and Ibom power plants and 4771MW from National Integrated Power Project (NIPP).

The high voltage transmission system as of 2015 consisted of 6,680 km of 330kV transmission lines, 9,161 km of 132 kV transmission lines, 38 (#) 330 kV Substations and 126 Nos. 132 kV Substations. Nigeria has the following transmission interconnections between its neighbouring countries;

1. 132 kV transmission line from Northern Nigeria to Niamey in Niger – the line was constructed in 1976 and spans 260 km
2. 132 kV transmission line from Katsina (Nigeria) to Gazaoua (Niger) with a distance of 103km.

3. 330 kV single circuit line from Ikeja West Substation in Lagos to Sakete Substation in the Republic of Benin near the Benin – Nigeria border; The line was commissioned in 2007 and spans 70km between the two countries.

Nigeria has its National Control Centre in Oshogbo and has three (3) other regional control centres.

2.2. Communauté Electrique du Benin (CEB)

The Communauté Electrique du Bénin (CEB) is an international public Organization which was established by the International Agreement of July 27, 1968. By this Agreement, CEB had the monopoly of power generation and transportation in Benin and Togo and the monopoly to develop the related infrastructure.

The revised Benin-Togolese Electricity Code has attributed to CEB exclusivity in the two countries to transport, import and sole purchaser for the needs of the two countries. The revised Code has opened up power generation activities to Independent Power Producers.

CEB is the single electricity power supplier to the distribution utilities in Benin (Société Béninoise d'Energie Electrique (SBEE)) and in Togo (Compagnie Energie Electrique du Togo (CEET)) together with some large industries.

The activities of the CEB started in 1973 following the commissioning of a 161 kV interconnection between the two countries and Ghana. In 2007 a 330 kV network was commissioned to interconnect the network of CEB to that of Nigeria. In 2010, electricity import totalled 88.6% of the consumption of Togo and Benin. These were from Ghana (30.16%), Côte d'Ivoire (4.03%) and Nigeria (51.49%). The rest of the energy was produced locally. CEB currently operates the 65 MW hydroelectric power plant at Nangbéto and occasionally two (2#) 20 MW Gas Turbines, one in Lome (Togo) and the other in Cotonou (Benin). Contour Global an Independent Power Producer (IPP) based in Togo currently operates a Thermal Power Plant with installed capacity of 100 MW. The SBEE and CEET have made stand-by arrangements of some thermal power plants they can fall on in case of failure of supply from CEB.

The CEB interconnected network covers mostly the coastal regions, which have a high population density, and a concentration of economic and industrial activities. Facing a steady growth in demand, resulting from the development and expansion of new cities inside both countries, CEB undertook a series of studies towards:

- development of the hydroelectric potential of both countries;
- diversification of the sources of power supply through the interconnection with Nigeria, within the framework of West African Power Pool;
- expansion of the transmission system in both countries through the interconnection of the Northern regions to the coastal network of the South. On January 22nd, 2011, the Government of Benin secured financing from the Banque Ouest Africaine de Developpement (BOAD) by the Fonds de Developpement Energie (FDE) to fund the preparation and construction of the single circuit 161 kV Malanville – Kandi – Bembereke Transmission Line Project in Benin.

CEB's transmission system currently comprises of 16 km of 330 kV network, 1,624 km of 161 kV network and 97 km of 63 kV network. The addition of the 330 kV line currently under construction between Sakété substation (in Benin) and Volta substation (in Ghana) through a new substation 330/161/20 kV of Davie (in Togo) will bring to 212 km the length of the 330 kV lines and 1,669 km of 161kV lines in CEB .

2.3. Ghana Grid Company (GRIDCo)

The Ghana Grid Company (GRIDCo) was established in accordance with the Energy Commission Act, 1997 (Act 541) and the Volta River Development (Amendment) Act, 2005 Act 692, which provides for the establishment and exclusive operation of the National Interconnected Transmission System by an independent Utility and the separation of the transmission functions of the Volta River Authority (VRA) from its other activities within the framework of the Power Sector Reforms. The company became operational on August 1, 2008 following the transfer of the core staff and power transmission assets from VRA to GRIDCo.

The main functions of GRIDCo are to among others:

- undertake economic dispatch and transmission of electricity from wholesale suppliers (generating companies) to bulk customers, which include the Electricity Company of Ghana (ECG), Northern Electricity Distribution Company (NEDCo) and the Mines;
- provide fair and non-discriminatory transmission services to all power market participants;
- acquire and manage assets, facilities and systems required to transmit electrical energy
- provide metering and billing services to bulk customers.
- carry out transmission system planning and implement necessary investments to provide the capacity to reliably transmit electric energy; and manage the Wholesale Power Market.

As at October 2017, the grid of GRIDCo was characterized by 371km of 330 kV Transmission Lines, 75km of 225 kV Transmission Lines, 4,933km of 161 kV Transmission Lines, and 133 km of 69 kV lines. The total power transformer capacity of the entire transmission network as at October 2017 was 5, 798.5 MVA.

The network of GRIDCo is integrated into the 330 kV WAPP Coastal Transmission Backbone that also includes the systems of Nigeria, Benin, Togo and Côte d'Ivoire. It is envisaged that the national system of Burkina Faso shall be interconnected with Ghana in 2018.

2.4. 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 State 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 the ‘Côte d’Ivoire Energies’ (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.

A second interconnection is planned with Ghana for 330 kV between the Bingerville substations in Côte d’Ivoire and Dunkwa 2 in Ghana for a length of 245 km. Côte d’Ivoire is also taking part in a West African Power Pool (WAPP) Project, which provides for 225 kV interconnection between Côte d’Ivoire, Liberia, Sierra Leone and Guinea Conakry, known as CLSG, 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 Conakry.

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 330 kV Nigeria – Benin – Togo – Ghana- Côte d’Ivoire Double Circuit Median Interconnection 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 various countries (Nigeria, Benin, Togo, Ghana, Côte d'Ivoire), International Agreements on environment ratified by the countries involved in the Project as well as Funding Agencies such as the World Bank (WB) (compliance with the new World Bank Environmental and Social Framework and applicable Environmental, Health and Safety Guidelines), African Development Bank (AfDB), Agence Française de Développement (AFD), Kreditanstalt für Wiederaufbau (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 Plans and Livelihood Restoration Plans;
- Detailed Survey of Line Route
- Preparation of a Stakeholder Engagement Plan (SEP) describing Public Consultations throughout the entire study
- Public sensitization at conclusion of study
- Training and Capacity Building Plan

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 including cadastral mapping of individual farm lands, areas of dwelling, communal land use and affected properties, as well as protected area, natural habitat areas and critical habitat areas;
- 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>
• Nigeria	50 meters	50 meters
• Benin	50 meters	50 meters
• Togo	50 meters	50 meters
• Ghana	40 meters	50 meters
• Côte d’Ivoire	50 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, biological and human environment (villages, towns, settlements, special-area planning, trees, protected and sacred forests, natural habitat, critical habitat, 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 and critical habitat 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 TCN, CEB , GRIDCo and CI-ENERGIES as appropriate regarding routing and planning standards in Nigeria, Benin, Togo, Ghana and Côte d’Ivoire 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, national parks, critical habitat areas, 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 meaningful and 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, allocated properties, areas of dwelling, communal land use
- Hunting Reserves, national parks, critical habitat areas and Forest Reserves and other sensitive areas
- Cultural, Religious and Heritage Sites including Cemeteries and sacred sites
- Markets and areas with high population densities in non-allocated areas

The description of the corridor shall also include commentary on the type of vegetation, presence of endemic and threatened flora species mentioned in the IUCN Red List, topography within each community and their land use pattern for the entire line route. Presence of wildlife species, endemic and threatened species mentioned in the IUCN Red List for the entire line route.

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.

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, TCN, CEB, GRIDCo and CI-ENERGIES. 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 four 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 note that in Ghana, the land statutory wayleave Act, 1963 establishes a provision for a Wayleave Selection Committee to determine the optimal routing to ensure that the selected wayleaves are consistent with Town and Country Planning Regulations and Local Government Byelaws. The Consultant shall work very closely with, and get guidance from, GRIDCo to ensure full conformity with the requirements. The Consultant shall also note that the scope of work in Ghana includes the application and securing of the wayleave authorization. The Consultant shall consult with GRIDCo before initiating the wayleave application.

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 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 × 40 × 25 cm 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, including affected forests and natural habitat areas) 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, TCN, CEB, GRIDCo and CI-ENERGIES. 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 TCN, CEB, GRIDCo, CI-ENERGIES and 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
- A satellite imagery map depicting the line route/right-of-way
- For Ghana, a general map showing the Way Leave Selection Committee Members.

The Consultant shall confirm with GRIDCo, the Way Leave Committee Members. The Consultant shall note that the general map shall be validated and signed by a licensed Surveyor recognized in Ghana. Twenty (20#) copies of the general map with the wayleave committee members printed on it and duly signed shall be provided by the Consultant.

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.

4.1.5. Cadastral mapping of individual farmlands (encumbered/ unencumbered) and affected properties

The Consultant shall undertake a cadastral mapping of individual farmlands and affected properties with the aid of the property owners who will advise the consultant on the extent of his/her properties. The Consultant shall generate a cadastral map of the entire line route indicating the properties affected with their ownership and also their land use pattern of the land.

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
- Preparation of cadastral map/plan

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, TCN, CEB, GRIDCo and CI-ENERGIES 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, biological and human environment (villages, towns, settlements, special-area planning, trees, protected and sacred forests, national parks, natural habitat, critical habitat, 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 TCN, CEB and GRIDCo and CI-ENERGIES as appropriate regarding routing and planning standards in Benin and Nigeria 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, national parks, critical habitat, 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 and biological 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, natural habitat and critical habitat areas
- Cultural, Religious and Heritage Sites including Cemeteries and Sacred sites
- 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, TCN, CEB, GRIDCo and CI-ENERGIES. 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 TCN, CEB, GRIDCo and CI-ENERGIES.

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.

4.2.4. Preparation and delivery of a Cadastral Map/Plan

The Consultant shall, in close collaboration with each of the concerned utilities, prepare a cadastral plan/map of the proposed substation Site. The Consultant shall bear in mind that the cadastral map/plan shall be used by the concerned utilities for land title registration. The Consultant shall note that the cadastral map/plan should be duly signed by a licensed surveyor and approved by the Director of Surveys or his/her Representative. The boundaries of the substation site should be clearly defined by boundary pillars which are assigned with regional numbers from the lands commission.

The Consultant shall deliver seven (7#) Cadastral Map/Plan duly signed and approved.

4.3. 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 five (5) countries for the implementation.

The Consultant shall review all necessary data and reports on the proposed 330 kV Nigeria – Benin – Togo – Ghana – Côte d’Ivoire Double Circuit Median Interconnection 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, the new World Bank Environmental and Social Framework (ESF). In principle all 10 Environmental and Social Standards (ESSs) apply, as well as the General Environmental, Health and Safety Guidelines and the EHSs on Electric Power Transmission and Distribution and potential others.

Scoping

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 undertake 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. Based on the concerns raised during the public consultation meetings the ESIA ToRs should be finalized and the raised concerns shall be adequately addressed in the ESIA Report.

The Consultant will design the field work programme required to address baseline data requirements. The field work programme should specify:

- The number of samples which need to be collected;
- The proposed sampling locations;

- Duration of sampling;
- Sampling of affected households
- Stakeholder engagement activities for the ESIA
- Any equipment required to conduct the sampling;
- The use of Sub-consultants allocated to the data collection; and
- The schedule for the data collection and analysis.

The Consultant will complete a Scoping Report. The Scoping Report will compile relevant outputs from the inception phase, observations made through the preparation of the field work plan. This document will then inform the Terms of Reference (ToR) for the ESIA.

The expected deliverables from this task will be:

- Field Work Plan; and
- Scoping Report for submission.

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.

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 five (5) 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.

Scope of ESIA

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

- A description of the institutional and legal framework, especially with regards to the conduct of ESIA's in each of the concerned countries, as well as the requirements of the various funding agencies
- A description of the project and works to be conducted

- A description of existing Environment and its initial state (environmental and social baseline survey), including biodiversity baseline surveys: flora, fauna, such as the presence of mammals, birds, reptiles, amphibians, fish. Screening for the presence of endemic and endangered species and species mentioned in the IUCN Red List
- A study of the variants of the project (Analysis of Alternatives)
- Study of community health through a combination of primary and secondary data collection. All data collection will need to be consistent with National regulations, taking particular note of potential concerns regarding primary health data collection. The Consultant should identify any existing health conditions or concerns which are affecting Project communities. The Consultant will also be expected to assess community health risks caused by the Project. This should address both legitimate health hazards and perceptions of health hazard.
- The Consultant will need to generate a traffic and logistics baseline to inform an assessment into potential community safety impacts. The Consultant will also need to ensure that an appropriately qualified traffic assessment specialist is engaged to work to understand the Project and any safety hazards these may present to proximal communities
- The Consultant will collect and assess secondary data to develop an understanding of the labour and working conditions considerations relevant to the Project, including National labour legislation per country. The Consultant will identify potential labour impacts generated by the Project. This will include working conditions, the potential labor influx during construction and housing of labor in camps (if any) and contractor responsibilities
- Typically influx of labor and construction activities may aggravate risks of GBV, sexual exploitation, spread of HIV and other communicable diseases. The Consultant will undertake a mapping of service providers that can provide counselling and other services to victims. The consultants will engage with other organizations and key institutions like WHO, UN, GBV prevention NGO's to characterise the risk issues and map the service provision by country. A GBV specialist will be an integral part of the ESIA team
 - Based on the above an Identification & Assessment of potential negative and positive environmental and social impacts assessing all issues mentioned in the 10 World Bank Environmental and Social Standards, as well as the Environmental, Health and Safety Guidelines, as well as requirements of other donors. Special attention for ESS2 and ESS4, including Occupational Health and Safety (OHS)
 - Proposal on adequate Mitigation measures
 - Preparation of a Provisional Environmental & Social Management Plan (ESMP), including detailed institutional arrangements for the ESMP implementation and a budget.
 - 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 a Final Environmental & Social Management Plan
 - Preparation of Illustrative Materials.
 - Detailed Proposal, in consultation with each of the ultimate Beneficiaries, on training and capacity building program to be undertaken by the environmental agencies, ministries, utilities, contractors, Supervising Engineer or others based on an assessment conducted by the ESIA Consultant that highlights the capacity reinforcements required.

4.3.1. Study of Existing Environment

A detailed 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, soils and erosion sensitivity of 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, rivers, forest reserves, national parks, critical habitat, natural habitat)
- 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 and livelihoods
 - ix. Characterization of labor requirements and corresponding risks(Content of Code of Conduct to be signed by all worker prior to start of work)
 - x. Labor Management Procedures
 - xi. Employment(Recruiting Procedures)//Manufacturing
 - xii. Agriculture
 - xiii. Public Health (including HIV/AIDS)
 - xiv. Gender, Gender Based Violence and Sexual Exploitation and Abuse (SEA)

4.3.2. Identification & Assessment of Potential Environmental and Social Impacts

Some environmental and social impacts 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, gender, gender based violence and sexual exploitation and abuse. The Consultant shall elaborate on the methodology employed

in the impact assessment study, which should follow an internationally acceptable methodology.

The Consultant shall evaluate the benefits of the project for the five (5) 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).

4.3.3. Mitigation Measures

The Consultant shall propose mitigation measures for the potential environmental and social effects that would occur from pre-construction, construction, operational and decommissioning 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.

4.3.4. Health and Safety Risks and Accident Management

The Consultant will proceed to estimate the following risks:

- 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 (Contractors shall prepare and implement an OHS Plan and recruit certified OHSAS 18001:2007 staff);
- 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 (all workers should sign a Code of Conduct prior to start working as part of their contract);
- 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.).

4.3.5. Environmental & Social Management Plan (ESMP)

The Consultant shall develop an Environmental & Social Management Plan (ESMP) for the 330 kV Nigeria – Benin – Togo – Ghana-Côte d'Ivoire Double Circuit Median Interconnection Project. The Consultant shall familiarize themselves 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:

- ✓ 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
- ✓ The cost for implementing the mitigating measures
- ✓ Composition and job description of project environmental and social management unit of the Project Implementation Team (PIT), which should include an environmentalist, a social ESF specialist, GBV specialist, traffic specialist, community/public health specialist, team of surveyors, Occupational Health Specialist (OHS).
- ✓ Structure of reporting for project environmental and social management unit; this should be linked with operational and administrative activities.
- ✓ Capacity building requirements (including training, equipment) of the environmental and social and OHS departments of TCN, CEB, GRIDCo and CI-ENERGIES 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.
- ✓ Institutional aspects on responsibility and timing for all relevant issues during the implementation of the ESMP.
- ✓ Parameters to be monitored, e.g., noise, electromagnetic force, etc. and definition of responsibilities.
- ✓ Sampling sites.
- ✓ Frequency of measurements.
- ✓ Method of sampling and analysis.
- ✓ Monitoring program.
- ✓ Proper and adequate record keeping.
- ✓ Places to be restricted to unauthorized persons.
- ✓ Combined independent and internal Environmental, Social and OHS audits 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 TCN, CEB, GRIDCo and CI-ENERGIES staff reporting internally
 - External audit - undertaken by independent consultants reporting to the Implementing Agency/Unit (in line with adopted Institutional framework) in addition to TCN, CEB, GRIDCo and CI-ENERGIES.

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 should outline responsibilities for implementation, the time frame of implementation, and budget as required in national directives, the AfDB's, EU and/or World Bank's format of the preparation of such documents. Specific requirements relating to ESIA's and ESMP's are set out in the World Bank's ESF and 10 ESSs 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.

At this stage the following topics are considered relevant for dedicated specialist management plans:

- Stakeholder engagement;
- Water management;
- Waste management;
- Land use management;
- Vegetation & Wildlife Management Plan
- Transportation Plan
- Cultural heritage and Chance findings protocols
- Emergency preparedness and spill response;
- Community health, safety and security;
- Noise management;
- Air quality management;
- In-migration management;
- Labor and working conditions;
- Worker's camp management
- Code of conducts
- GBV Action Plan
- Grievance Management for affected communities
- Worker's grievance Management
- Environmental monitoring (including groundwater and surface water monitoring); Cultural heritage management.

The ESMP shall ensure that environmental and social and OHS 'due diligence' is observed during the construction phase and in the operational/maintenance activities of the 330 kV Nigeria – Benin – Togo – Ghana – Côte d'Ivoire Double Circuit Median Interconnection Project. The responsibilities of the Contractor and the Supervising Engineer need to be detailed in the ESMP and shall include but not limited to:

- Securing of sites for work camps and Worker's Camps Management Plans

- Contractor Management, Labor Management, Gender Based Violence (GBV), Sexual Exploitation and Abuse (SEA) and Code of Conduct
- Opening up of corridors, access roads, cutting of trees, borrow pits
- 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)
- Transport Management (traffic and speed control, etc.)
- Influx Management
- Hygiene and security measures (obstruction of road traffic)
- HIV transmission prevention

International practice requires that the Contractor prepares and implements, after approval, their own Contractor ESMP called CESMP, as well as an OHS Plan, while the Supervising Engineer by contractual arrangement shall need to be made responsible for the adequate implementation of the CESMP and the OHS Plan. The Contractors as well as the Supervising Engineer will need to recruit experienced E&S Specialists and OHSAS 18001 certified OHS Specialists.

All relevant aspects mentioned in the 10 ESSs needs to be addressed in the ESMP.

4.3.6. Public Consultations and Information

The Consultant shall be required to prepare and implement a Stakeholder Engagement Plan (SEP) according to the provisions of ESS10 and undertake consultations throughout the entire study with a number of relevant agencies including relevant Government Ministries, Non-Governmental Organizations (NGOs), affected communities, Local and Regional Authorities and the public regarding the proposed project. The consultations shall focus on the needs of women and other vulnerable groups. The Consultant shall also be required to undertake public consultations in all five (5) 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 Environmental and Social Impact Assessment Study Final Report has been adopted.

4.3.7. 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 and in compliance with ESS5. 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 list of all affected land users including squatters, sharecroppers, encroachers and those with traditional rights and on land including community lands
- A description of the location of all of these properties including GPS coordinates
- 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 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 below or above 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)

- details of livelihoods and potential loss of income and assets due to project

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 Agenc(ies), the complete database of the information collected within the framework of preparing the PIR and the RAP.

4.4. 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 detailed census of directly affected persons who may be relocated, or whose incomes or livelihoods may be displaced, by the project, and conduct a valuation of the assets and incomes. Particular attention shall be paid to women, vulnerable groups and children;
- Describe the policy and regulatory context (e.g. laws, regulations, and procedures) of the Governments of all the five (5) countries on resettlement, and demonstrate their relevance to the most recent appropriate African Development Bank policy and World Bank's ESS5 on involuntary resettlement covering displacement, resettlement, and livelihood restoration;
- Determine the entitlement matrix, compensation and other resettlement assistance;
- Conduct consultations with identified project affected persons (PAPs) about the resettlement and other acceptable alternatives;
- Conduct consultations with any potential host communities that may be affected by any relocation activities
- 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 through an internationally acceptable methodology.

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 avoid and/or 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 Nigeria, Benin, Togo, Ghana and Cote d'Ivoire 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], agricultural activities below this vertical clearance, and those that do not hamper access to the TL (normally trees up to 5 meter height are allowed), 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). Buildings are prohibited under the line. 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 policy 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.

4.5. 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. The ESIA and RAP Summaries should include some maps and photographs. 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.).

4.6. Training Programme

Training of staff of TCN, CEB, GRIDCo, and CI-ENERGIES 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.

4.7. 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 and should include some maps and photos.

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 five (5) 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 five (5) 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 five (5) 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 5 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.

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

The Consultant shall bear in mind that as a social mitigation measure and through conventional means (medium voltage outlets from the Substations to be constructed under the project), extensions of nearby distribution networks and shield-wire technology or

similar, the project also envisages to provide electricity to 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, the Consultant shall catalogue all eligible villages/town/communities in the Line Route Study Report describing among others, their exact power line route distance from the proposed line route/substation, population, and general geographical layout to enable the Consultant preparing the Feasibility Study to make an appropriate proposal. The Consultant shall bear in mind that the description of the geographical layouts of the villages/towns/communities should be in sufficient detail to allow the Consultant preparing the Feasibility Study make adequate estimation of the high, medium and low voltage networks required.

5. DURATION OF STUDY AND SCHEDULE

The duration for executing the Line survey and the Environmental and Social Impact Assessment shall not exceed 69 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 Nigeria, Benin, Togo, Ghana & Côte d'Ivoire.</i>	<i>Wo + 14 weeks</i>
Submission of Draft Report on the Provisional Line Route	Wo + 16 weeks
Field trip to assess proposed 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
<i><u>In Ghana</u></i>	
Submission of Draft Report ESIA	Wo + 26 weeks
Training program commences	Wo + 28 weeks
Training program concludes	Wo + 30 weeks
Submission of Comments on Draft Report ESIA	Wo + 32 weeks
Submission of Final Report ESIA	Wo + 34 weeks
<i>Approval of Final Report ESIA by Permitting Authority in Ghana</i>	<i>Wo + 42 weeks</i>
Submission of Draft Reports ESMP, RAP	Wo + 44 weeks
Submission of Comments on Draft Reports ESMP, RAP	Wo + 46 weeks
Submission of Final Reports ESMP, RAP	Wo + 48 weeks

Submission of Non-technical Summary report	Wo + 49 weeks
Submission of Non-technical local language Summary report	Wo + 49 weeks
<i>In Nigeria, Benin, Togo & Côte d'Ivoire</i>	
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 Nigeria, Togo, Benin, Ghana & Côte d'Ivoire.</i>	Wo + 45 weeks
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>	Wo + 52 weeks
<i>Completion of Public Information and Sensitization Campaigns</i>	Wo + 54 weeks
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 + 65 weeks
Submission of Comments on Draft Project Completion Report	Wo + 67 weeks
Submission of Final Project Completion Report	Wo + 69 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 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 and take part in meetings, seminars, workshops, public consultations/sensitization campaigns and field trips to among others, 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).

As part of the examination of the Draft Provisional Line Route Study Report, the Consultant shall organize (and take part) 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.

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, TCN, CEB, CI-ENERGIES and GRIDCo. 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 TCN.*
- *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 Nigeria*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to CEB.*
- *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 Benin and Togo.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
- *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 Ghana*
- *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*
- *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.*

➤ 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 TCN.*
- *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 Nigeria*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to CEB.*
- *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 Benin and Togo.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
- *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 Ghana*
- *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*

- *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 Reports. 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 TCN.*
- *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 Nigeria*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to CEB.*
- *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 Benin and Togo.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
- *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 Ghana*
- *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*
- *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:

- *Five (5) hard copies and one (1) electronic copy in English to be delivered to TCN.*
- *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 Nigeria.*
- *Five (5) hard copies and one (1) electronic copy in French to be delivered to CEB.*

- *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 Benin and Togo.*
- *Five (5) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
- *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 Ghana.*
- *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:*
 - *Ten (10) hard copies and one (1) electronic copy in English to be delivered to TCN.*
 - *Ten (10) 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 Nigeria.*
 - *Ten (10) hard copies and one (1) electronic copy in French to be delivered to CEB.*
 - *Ten (10) 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 Benin and Togo.*
 - *Ten (10) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
 - *Ten (10) 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 Ghana.*
 - *Ten (10) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
 - *Ten (10) 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.*
 - *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 TCN.*

- *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 Nigeria*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to CEB.*
- *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 Benin and Togo.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
- *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 Ghana*
- *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.*
- *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 TCN.*
 - *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 Nigeria*
 - *Three (3) hard copies and one (1) electronic copy in French to be delivered to CEB.*
 - *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 Benin and Togo.*
 - *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
 - *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 Ghana*
 - *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.*
 - *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:*

- *Five (5) hard copies and one (1) electronic copy in English to be delivered to TCN.*
- *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 Nigeria.*
- *Five (5) hard copies and one (1) electronic copy in French to be delivered to CEB.*
- *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 Benin and Togo.*
- *Five (5) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
- *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 Ghana.*
- *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.*

➤ *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 TCN.*
 - *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 Nigeria.*
 - *Five (5) hard copies and one (1) electronic copy in French to be delivered to CEB.*
 - *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 Benin and Togo.*

- *Five (5) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
- *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 Ghana.*
- *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:*
 - *Twenty (20) hard copies and one (1) electronic copy in English to be delivered to TCN.*
 - *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 Nigeria.*
 - *Twenty (20) hard copies and one (1) electronic copy in French to be delivered to CEB.*
 - *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 Benin and Togo.*
 - *Twenty (20) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
 - *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 Ghana.*
 - *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 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.*

➤ *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 TCN.*
 - *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 Nigeria.*
 - *Five (5) hard copies and one (1) electronic copy in French to be delivered to CEB.*
 - *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 Benin and Togo.*
 - *Five (5) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
 - *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 Ghana.*
 - *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:*
 - *Twenty (20) hard copies and one (1) electronic copy in English to be delivered to TCN.*
 - *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 Nigeria.*
 - *Twenty (20) hard copies and one (1) electronic copy in French to be delivered to CEB.*
 - *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 Benin and Togo.*
 - *Twenty (20) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
 - *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 Ghana.*
 - *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 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.*

➤ *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 TCN.*
 - *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 Nigeria.*
 - *Five (5) hard copies and one (1) electronic copy in French to be delivered to CEB.*
 - *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 Benin and Togo.*
 - *Five (5) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
 - *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 Ghana.*
 - *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:*
 - *Twenty (20) hard copies and one (1) electronic copy in English to be delivered to TCN.*
 - *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 Nigeria.*
 - *Twenty (20) hard copies and one (1) electronic copy in French to be delivered to CEB.*
 - *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 Benin and Togo.*
 - *Twenty (20) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
 - *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 Ghana.*
 - *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 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.*

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 TCN in Nigeria, CEB in Benin/Togo, GRIDCo in Ghana and CI-ENERGIES in Côte 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:*
 - *Five (5) hard copies and one (1) electronic copy in English to be delivered to TCN.*
 - *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 Nigeria.*
 - *Five (5) hard copies and one (1) electronic copy in French to be delivered to CEB.*
 - *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 Benin and Togo.*
 - *Five (5) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
 - *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 Ghana.*
 - *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:*
 - *Twenty (20) hard copies and one (1) electronic copy in English to be delivered to TCN.*
 - *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 Nigeria.*
 - *Twenty (20) hard copies and one (1) electronic copy in French to be delivered to CEB.*
 - *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 Benin and Togo.*

- *Twenty (20) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
- *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 Ghana.*
- *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 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.*

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:*
 - *Five (5) hard copies and one (1) electronic copy in English to be delivered to TCN.*
 - *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 Nigeria.*
 - *Five (5) hard copies and one (1) electronic copy in French to be delivered to CEB.*
 - *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 Benin and Togo.*
 - *Five (5) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
 - *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 Ghana.*
 - *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:*

- *Twenty (20) hard copies and one (1) electronic copy in English to be delivered to TCN.*
- *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 Nigeria.*
- *Twenty (20) hard copies and one (1) electronic copy in French to be delivered to CEB.*
- *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 Benin and Togo.*
- *Twenty (20) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
- *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 Ghana.*
- *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 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.*

➤ 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 TCN.*
 - *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 Nigeria*
 - *Three (3) hard copies and one (1) electronic copy in French to be delivered to CEB.*
 - *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 Benin and Togo.*
 - *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
 - *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 Ghana.*
 - *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.*

- *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 TCN.*
- *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 Nigeria*
- *Three (3) hard copies and one (1) electronic copy in French to be delivered to CEB.*
- *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 Benin and Togo.*
- *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
- *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 Ghana.*
- *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.*
- *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*

- *Final Report:*

- *Five (5) hard copies and one (1) electronic copy in French to be delivered to TCN.*
- *Five (5) hard copies and one (1) electronic copy in English to be delivered to CEB.*
- *Five (5) hard copies and one (1) electronic copy in French to be delivered to GRIDCo.*
- *Five (5) hard copies and one (1) electronic copy in French to be delivered to CI-ENERGIES.*
- *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 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 TCN.*
 - *One (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Nigeria*
 - *One (1) electronic copy in French to be delivered to CEB.*
 - *One (1) electronic copy in French to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Benin and Togo.*
 - *One (1) electronic copy in English to be delivered to GRIDCo.*
 - *One (1) electronic copy in English to be delivered to each of the Ministries in charge of Energy and Environmental Protection in Ghana*
 - *One (1) electronic copy in French to be delivered to CI-ENERGIES.*
 - *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.*
 - *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 TCN.*
 - *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 Nigeria*
 - *Three (3) hard copies and one (1) electronic copy in French to be delivered to CEB.*
 - *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 Benin and Togo.*
 - *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
 - *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 Ghana.*
 - *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.*
 - *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 TCN.*
 - *Three (3) hard copies and one (1) electronic copy in French to be delivered to CEB.*
 - *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
 - *Three (3) hard copies and one (1) electronic copy in English to be delivered to CI-ENERGIES.*
 - *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 Project Completion Report:*
 - *Three (3) hard copies and one (1) electronic copy in English to be delivered to TCN.*
 - *Three (3) hard copies and one (1) electronic copy in French to be delivered to CEB.*
 - *Three (3) hard copies and one (1) electronic copy in English to be delivered to GRIDCo.*
 - *Three (3) hard copies and one (1) electronic copy in English to be delivered to CI-ENERGIES.*
 - *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.*

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).

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 (transler 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. 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
- (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 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
- (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
- (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 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)**
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 two (2) 161 kV and above transmission line projects that included Environmental and Social Management Plans, one of which should be in Africa. Working knowledge of English and French is an advantage
- (h) Title : **Biologist (Specialist in 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 two (2) 161 kV and above transmission line projects that included Environmental and Social Management Plans, one of which should be in Africa. Working knowledge of English and French is an advantage
- (i) Title : **OHS Specialist**
Expected Level Of Effort :
(Person-Month)
Years of Professional Experience : 8
Participation in among others Kick off meeting, Scoping report validation meeting, Meeting to examine Draft ESIA, ESMP & RAP Reports, One of the Donor Consultation Meetings.
Specific Expertise : Carried out OHS plans and emergency response plans. Involved in the development ESIA/ESMP/RAP 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

The Consultant is very strongly encouraged to have local teams in each of the concerned countries to facilitate the execution of the assignment.

8. INFORMATION TO BE PROVIDED BY THE WAPP SECRETARIAT, TCN, CEB, GRIDCo AND CI-ENERGIES.

The WAPP Secretariat, TCN, CEB, GRIDCo and CI-ENERGIES 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, TCN, CEB, GRIDCo and CI-ENERGIES, shall appoint a Project Manager who shall co-ordinate the activities of the Consultant in Nigeria, Togo/Benin, Ghana and Cote d'Ivoire respectively.

All correspondences on the project from the Consultant addressed to any party should be copied to the other four (4) Parties for their information.

10. CONDUCT OF WORK

Close coordination among the Consultant, WAPP, TCN, CEB, GRIDCo, CI-ENERGIES 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, TCN, CEB, GRIDCo and CI-ENERGIES.

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

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

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, TCN, CEB, GRIDCO AND CI-ENERGIES

The WAPP Secretariat, TCN, CEB, GRIDCo and CI-ENERGIES 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.

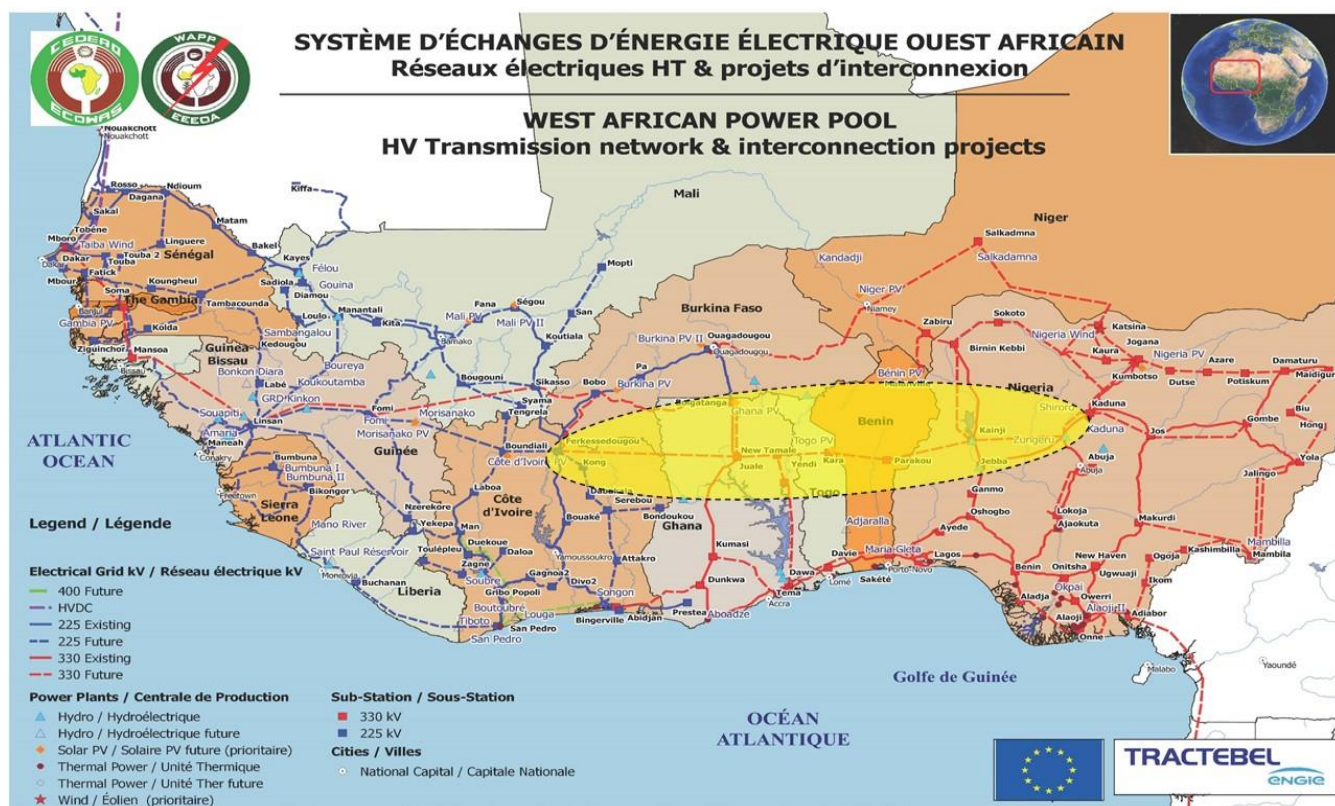
- Arrangements for meetings with representatives of WAPP, TCN, CEB, GRIDCo and CI-ENERGIES.
-

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 Nigeria and Benin 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 Nigeria and Benin 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.