

## **Draft Terms of Reference**

### **1) Background**

The development of energy infrastructure is embedded in the national development priorities of each country which are clearly articulated in their respective Bank Country Strategy Papers (CSPs) and emphasize the increase in electricity supply and the promotion of regional integration promoting energy trades on regional level.

The Uganda (Olwiyo) – South Sudan (Juba) 400kV Power Interconnection Project aims at contributing to the economic development of South Sudan in particular and regional integration of Uganda and South Sudan to aid in power trade in general. This Project was prioritized by the Governments of South Sudan and Uganda under Nile Basin initiative (NBI), being Uganda and South Sudan among the countries ratified to the NBI, and the Nile Equatorial Lakes Subsidiary Action Program (NELSAP) for Scaling up the NELSAP Power Program following the Study for Hydropower Expansion Plan. It was also prioritized in the Regional Integration Plan of South Sudan into Regional Electricity Grid completed in July 2015 as well as the EAPP master plan study of 2014. This intervention is affiliated with the African Union Agenda 2063 priority area of developing renewable energy sources to promote environmentally sustainable and climate resilient economies and communities, ensure access to affordable, reliable, sustainable, and modern energy for all, from the export of the available hydro generation in Uganda to South Sudan and future hydro generation from South Sudan to Uganda.

In addition, the NBI transitioning into a commission outlines specific principles, rights and obligations of State Parties, including obligations to regularly exchange data and information, to notify planned measures and to observe the subsidiarity principle in development and protection of the Nile. the Treaty intends to establish a framework to "promote integrated management, sustainable development, and harmonious utilization of the water resources of the Basin, as well as their conservation and protection for the benefit of present and future generations". For this purpose, the Treaty envisages the establishment of a permanent institutional mechanism, the Nile River Basin Commission (NRBC). The Commission would serve to promote and facilitate the implementation of the CFA and to facilitate cooperation among the Nile Basin States in the conservation, management and development of the Nile River Basin and its waters

The proposed project will provide a medium-term prospect of supplying power to the Border towns in Northern Uganda, the Southern parts of South Sudan around Juba, the capital city, which constitutes a big constraint to economic growth in this part of the region which has faced insecurity in the recent past. The project will in addition, contribute towards poverty eradication and improvement of the standard of living and socio-political aspects in the project area by providing gainful employment opportunities. The project will later be linked to the planned interconnections to Ethiopia and Sudan, as well as internal backbone transmission lines within Uganda and South Sudan forming part of the Western arm of the North-South electricity superhighway.

### **2) Project Objectives**

The goal of the project is regional integration by improving the livelihood of the people as well as the quality of the socioeconomic development environment for South Sudan through increased availability and affordability of electricity supply. The purpose of the Project is to improve access to electricity in South Sudan and Northern Uganda through increased cross-border sharing of power and to provide reliable power supply to the environs of the project. Outputs of the preparatory activities would enable the NELSAP, South Sudan and Uganda to take the necessary steps to have the transmission line constructed.

### **3) Project Descriptions**

The project involves the construction of 300.5 km of high voltage alternating current (HVAC) 400 kV transmission lines, of which about 151.5 km are located in Uganda and 149 km in South Sudan. The transmission line is intended to facilitate the transfer of power up to a maximum capacity of 2000 MW (1000MW per circuit). In Uganda and South Sudan, the project includes the construction of a new 400/220/132/33 kV substation in Juba (Nesitu) of South Sudan and a new 400/132/33kV substation in Bibia and extension of existing 132/33kV Olwiyo substation and 400/132/33kV substation In Uganda.

This interconnection will start from the existing 132/33 kV substation at Olwiyo, 52 km North east of Karuma (in Uganda) up to Bibia (in Uganda) and from Bibia(34km to border of Uganda and South Sudan), the line will continue to Nesitu, 15km south of Juba. The distance between Olwiyo and Bibia is about 116km while that one between Bibia and Nesitu is about 183 km.

Package A:

Lot A1:

Construction of an approximately 151.5km, 400kV transmission line from the Olwiyo substation (Gantry) to Border of Uganda-South Sudan including connection to South Sudan.

Lot A2:

Construction of an approximately 149km, 400kV transmission line from the Border of Uganda-South Sudan to Juba (Nesitu) substation including connection to Juba (Nesitu) substation

Package B

Lot B1:

Construction of the new 400/132/33kV Bibia substation with 1 x 100MVA autotransformer, 2x40MVA 132/33kV Power Transformers and all associated Primary and Secondary Plant (including SCADA); and the extension of the 400/132/33kV Karuma and Olwiyo substations by equipping new 400kV line bays together with all associated Primary and Secondary Plant (including SCADA) and 2x250MVA 400/132/33kV, transformers at Olwiyo substation together with all associated Primary and Secondary Plant (including SCADA).

Lot B2:

Construction of the new 400/220/132/33kV Juba (Nesitu) substation with 400/220/132/33kV (2 x 250 MVA) and 220/132/33kV (2x 125 MVA) transformers and all associated Primary and Secondary Plant (including SCADA).

#### 4) Project Financing

The Project is financed through several institutions: the total of about 302 USD million is financed with the following subdivision:

- The African Development Bank (AfDB) for a total of about 157 USD million, mainly for Uganda (122 million for Uganda, 33 million for South Sudan and 2 million for NELSAP)
- BADEA and EU for a total of about 136 USD million, mainly for South Sudan (120 million for South Sudan and 16 million for Uganda)
- Counterpart contribution, for a total of 5 USD million for South Sudan and 4 USD million for Uganda

#### 5) Project Packaging

Uganda part

Lot A1:

Construction of an approximately 151.5 km, 400kV transmission line from the Olwiyo substation (Gantry) to Border of Uganda-South Sudan including connection to South Sudan.

Lot B1:

Construction of the new 400/132/33kV Bibia substation with 1 x 100 MVA autotransformer, 2x40MVA 132/33kV Power Transformers and all associated Primary and Secondary Plant (including SCADA); and the extension of the 400/132/33kV Karuma and Olwiyo substations by equipping new 400kV line bays together with all associated Primary and Secondary Plant (including SCADA) and 2x250MVA 400/132/33kV, transformers at Olwiyo substation together with all associated Primary and Secondary Plant (including SCADA).

South Sudan part:

Lot A2:

Construction of an approximately 149km, 400kV transmission line from the Border of Uganda-South Sudan to Juba (Nesitu) substation including connection to Juba (Nesitu) substation.

Lot B2:

Construction of the new 400/220/132/33kV Juba (Nesitu) substation with 400/220/132/33kV (2 x 250 MVA) and 220/132/33kV (2x 125 MVA) transformers and all associated Primary and Secondary Plant (including SCADA).

**Note:** In all cases regarding design, manufacture, test, supply, erection and commissioning of the facilities included in **Lot A1, Lot A2, Lot B1, Lot B2** shall be the responsibility of the contractor(s).

#### 6) Project Executing Agencies

The Republic of Uganda and The Republic of South Sudan are the borrowers and recipient of the grant and loans from the financiers respectively. Ministry of Energy among The Republic of Uganda and The Republic of South Sudan are the recipient of the grant and loans from the financiers respectively.

The Uganda Electricity Transmission Company (UETCL) will be the Implementing Agency for the project on the Uganda side, while the South Sudan Electricity Corporation (SSEC) will be the Implementing Agency on the South Sudan side. NELSAP will be responsible for overall coordination of the project implementation activities.

The Ministry of Energy and Mineral Development (MEMD) will play a central oversight role on the Uganda side, by supporting and facilitating the land acquisition processes, the implementation of social safeguards, environmental monitoring, and the management of cross-cutting issues such as security.

#### 7) Project Coordination

To ensure effective coordination and implementation of the project, both UETCL and SSEC will establish project implementation Teams (PITs) for the purpose of implementing the project components that fall within their

territories. The PITs will manage all aspects of project implementation, assisted by the project consultant. The PITs shall include a Project Coordinator, Project Manager, Design Engineer, Substation Engineer, Transmission Engineer, Protection Engineer, Communication Engineer, Civil Engineer, Accountant, Procurement Specialist, Environmental Specialist, Social Expert, Monitoring and evaluation expert and senior surveyor.

The Ministry of Energy and Mineral Development shall directly support UETCL during project implementation, facilitate the land acquisition processes, the implementation of social safeguards, environmental monitoring, and management of cross-cutting issues such as security under the Joint Project Coordination Unit and Project Steering committee.

UETCL in consultation with SSEC appoint a Joint Project Coordinator (JPC)-NELSAP with the primary responsibility of coordination of common tasks to be performed by the two project Implementation Teams (PITs). These include coordinating the joint review of bidding documents and bid evaluation reports, obtaining financiers no objections, negotiation and the administration of the approved contract. The Joint Project Coordinator shall also be responsible for compilation and transmittal of the consolidated Quarterly Project Reports (QPRs) to financiers of the two Governments.

One Project Management and Supervision consultant with separate teams working in the two countries will be jointly employed by UETCL and SSEC.

There shall be two Consultant resident project managers with one being in Uganda and the other in South Sudan, they will work closely with the Joint Project Coordinator for the overall coordination of the project in both countries. The Ugandan Resident Project Manager of the consultant will be responsible for overall coordination of the project in both countries this will include liaison with the Uganda and South Sudan Project Implementation Teams.

## 8) Project Site Organization

- i. The Project site organization shall be set up by the Consultant to control all aspects of the implementation of the Project. All staff of the Project shall be the sole responsibility of the Consultant. However, to enhance the in-house capability of UETCL/SSEC in Project Management and Supervision, Counterpart Staff shall be assigned by UETCL/SSEC as required to the Project Site Organization established by the Consultant.
- ii. Both offices of the Joint Project Coordination Team and the Consultant Joint Project Manager will be in the same block in Gulu.

The Project implementation structure is described under Annex-1 of this TOR.

## 9) Site Supervision

The Consultant Project Supervision Staff shall be available full-time during the construction activity of each lot of the Project.

The Consultant shall assign the following site supervisors during the progress of various activities as required. Transmission Line: Transmission line erection engineers with civil works monitoring proven experience for transmission lines. Each lot will have its own independent site supervisor (One lot in Uganda and one lot in South Sudan)

- (i) Substations: Substation electromechanical erection engineers, substation protection, control and communication engineers and substation civil work engineers. Each lot will have its own independent site supervisor (One lot in Uganda and one lot in South Sudan)

- (ii) Environmental and Social Monitoring: Environmental Expert, Social Specialist and HSE Expert

UETCL and SSEC shall assign competent counterpart staff for the supervision of construction works. However, the overall responsibility of site supervision shall remain with the Consultant.

## 10) Project Implementation Schedule

Construction of each Transmission Line and substation Lots is expected to be completed within 26 months from the construction contract commencement date. The critical milestones for Project implementation are given below:

No.	Activities	Target Date	Month
1	Consultancy Service		
	Issue of RFP to Consultants	First week of November 2024	0(start)
	Submission of Proposal	January 2025	3
	Consultancy contract negotiation and signing	April 2025	6
	Advance payment and mobilization by the Consultant	June 2025	8
2	Bidding Stage for Construction Contractors		
	Issue of bid documents to Bidders' bid floating period	December 2025	14

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	Bid evaluation and approval by all concerning bodies (Clients and all Financier and NELSAPs)	June 2026	20
	Contract negotiation and signing with contractors	August 2026	22
	Advance payments to contractors	September 2026	23
3	Construction and Supervision		
	Detailed review and update of Tender Documents, and participation in bidding process and bid evaluation	December 2025	24
	construction contract commencement	October 2026	24
	Completion of design, manufacturing, delivery to site, site construction, erection, including quarterly report	December 2028	50
	testing and commissioning	January 2029	51
	Issue of Operational Acceptance Certificates	Jan. – May. 2029	55
	Defect Liability period	May 2030	67

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## **11) Scope of the Consultancy Services**

### **11.1 Objective(s) of the Assignment**

The objective of the consultancy services is to ensure the successful and timely implementation of the project, providing high-quality supervision, contract management, and ensuring compliance with environmental and social safeguards. The consultant will work closely with the Employer (UETCL & SSEC) under the oversight of MEMD to deliver the project within the agreed timelines and specifications.

### **11.2 General Scope of the Consultancy Services**

The General Consultant tasks shall include but not limited to, the following:

- a) Detailed review and update of Tender Documents, and participation in bidding process and bid evaluation
- b) Assist UETCL/SSEC in contract negotiation for all construction contracts with successful bidders, and preparation of all contracts and minutes of negotiation in coordination with UETCL/SSEC, and submission of such contracts and minutes of negotiation for "No objection" to the FINANCIER AND NELSAPS through the Joint Project Coordination Unit,
- c) After contract award with all contractors, review and update the detailed project implementation schedule including disbursement schedule and submit to UETCL and SSEC and the Financier and NELSAPS.
- d) Examination and approval of the Contractor's detailed design proposals and detailed drawings for compliance with the specifications in accordance with sound engineering practice,
- e) Supervision of works on site and ensure that they are done in compliance with the contract plan and specifications both as the quality and timing, including supervision of all civil, mechanical and electrical works construction
- f) Inspecting and witnessing with UETCL/SSEC's representatives the factory acceptance tests during manufacture of major items of equipment and materials to be supplied for incorporation in the Works, including electromechanical equipment supplied for incorporation in the Works.
- g) Review the UETCL/SSEC's requirement for proper operation and maintenance of the interconnector and propose appropriate training program, overseas training at the manufacturers' premises and as well as on site.
- h) General Administration of the project including Administration of all contracts.
- i) Liaison with all contractors and UETCL/SSEC such that the various works shall be properly interfaced and shall be completed within the time set in construction schedule.
- j) Impartially advise on any dispute or differences that may arise between UETCL/SSEC and the Contractors.

Ensure that approved complete set of "As-Built" drawings, and documentations including but not limited to manufacturer's technical, operational and maintenance manuals, Test records at factory and commissioning, standard maintenance protocols and procedures for each equipment, etc are handed over to UETCL/SSEC with the required quantities as specified in each Contract document.

- k) Establishment of contract billing procedures, verification and certification of all billing before submission to UETCL and SSEC's Project Managers for issue of authorization of payment,
- l) Issue Completion and Operational Acceptance certificates as per the terms and conditions of the contract,
- m) Preparation of monthly and quarterly project progress reports as required by UETCL/SSEC and/or the Financier and NELSAPS,
- n) Provide on-the-job training for UETCL and SSEC's staff in contractor's design approval, project management and supervision of construction of the transmission lines and substations.
- o) Ensuring that the environmental and social impact mitigation and monitoring measures provided in the Environmental and Social Management Plan (ESMP), included in the Project's Environmental and Social Impact Assessment (ESIA), are appropriately executed by contractors.
- p) Preparation and submission of Project Completion Report, outlining, inter-alia, achievements in relations to objectives and targets in accordance with the Financier and NELSAP's requirements.

### **11.3 Detailed Scope of Services**

This section describes the detailed scope of works of the Consulting Services required for the Project.

- a) Detailed review and update of Tender Documents, and participation in bidding process and bid evaluation

### **11.4 Contract Negotiations and Preparation of Contract Documents**

The Consultant shall be available during construction contract negotiations to assist UETCL and SSEC in the

contract negotiation with the successful Bidders and prepare minutes of negotiation and Contract Documents. Negotiation and Contract Award for the transmission line and substation lots shall be carried out by each Executing Agency separately.

Since Uganda and South Sudan are beneficiaries of two separate loans, for proper administration and disbursement of the contracts, the consultant will assist preparing separate Contract Documents for part works covered in each country.

## **12) Design Approvals and Supervision**

The consultant will be responsible for review of contractor's detailed engineering design, construction supervision and monitoring of the project as well as the implementation of the Environmental and Social Management Plan (ESMP). Overall responsibility for the project supervision and management lies with the consultant.

The Consultant shall assign full time site supervisors during the construction of the transmission lines and substations projects. The Consultant and its staff shall undertake close follow up of site activities to ensure that all works are constructed, erected and completed in accordance with approved drawings and specifications and international technical standards.

## **13) Supervision and Quality Control of Construction Works**

The Consultant shall supervise the construction of the transmission lines and Substations projects during all the construction periods. The Consultant shall submit monthly and quarterly progress reports and approve the payment requests by contractors to enable the Project Implementation Units of UETCL and SSEC to authorize the payment requests. The contractor shall produce a statement after each monitoring and supervising activity on a weekly basis.

The supervision works shall include the inspection of the commissioning of substations, transmission lines projects, control and protection systems, communication systems as carried out by the contractors. The contractor shall produce a statement after each monitoring and supervising activity on a weekly basis.

Each Resident Project Manager of the Consultant and his/her staff shall undertake close follow up to ensure that all works are constructed, erected and completed in accordance with approved drawings and specifications and international technical standards. The contractor shall produce a statement after each monitoring and supervising activity on a weekly basis.

The Joint Resident Project Manager of the Consultant shall undertake supervision mission in both countries and close coordination and follow up to ensure that all construction contracts within the two countries are constructed, erected and completed in accordance with agreed completion time.

Consultant must also provide for a surveyor on the project to help in supervision of the survey activities on the project. The Surveyor must be a Local Expert and Registered with the relevant professional body in the respective Country. The contractor shall produce a statement after each monitoring and supervising activity on a weekly basis.

### **Transmission Line**

The Consultant shall provide Transmission Line engineers for the following works for UETCL and SSEC:

- Supervise contractor's construction procedures,
- Monitor the transmission lines construction schedules.
- Advise on the interpretation of contractual matters.
- Supervise the delivery of equipment and materials to site.
- Supervise construction progress, test and commissioning procedures
- Witness and approve contractor's on-site tests and commissioning

### **Substations**

The Consultant shall provide Electrical Engineers, Civil Engineers and Protection and control etc., engineers or the following works for UETCL and SSEC:

- Supervision contractor's electromechanical construction procedures,
- Supervision contractor's civil works construction procedures
- Monitoring the electromechanical and civil works construction schedules.
- Advising on the interpretation of contractual matters.
- Supervision of the delivery of equipment and materials to site.
- Supervision of construction progress, test and commissioning procedures
- Witnessing and approving contractor's on-site test and commissioning

Environmental, Social, Health and Safety (ESHS) Management and Monitoring Responsibilities. The

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Consultant shall review ESHS documents and ESHS monitoring during construction, in accordance with laws and policies of the Governments of Uganda and South Sudan and AfDB OSs applicable requirements. The general scope of work includes the following activities:

- Monitor and supervise the implementation of the Environmental and Social Management Plan outlined in the Environmental and Social Impact Assessment Study, make proposals for amendments as deemed necessary by the Consultant due to his professional experience and/or evidence of need during project implementation.
- Review and approval of Construction Environmental and Social Management Plan (C-ESMP).
- Monitoring and supervision to ensure that the contractors fully implement all relevant mitigation measures and procedures specified in the Environmental and Social management Plan (ESMP).
- Ensure that all construction contractors prepare an acceptable, detailed ESHS Management Plan and an HIV/AIDS Awareness and Prevention Plan prior to commencement of site activities.
- Supervise the implementation of the ESHS Management Plan and HIV/AIDS Awareness and Prevention Plan and provide the necessary reporting.
- Approval of the contractors' occupational health and safety policy, establishing the contractors' capacity to address occupational health and safety issues, and as well as ensuring that the contractors demonstrate all necessary commitment to deliver the project in an environmentally and socially responsible manner.
- Ensure the project's compliance with the guidelines of AfDB referring to the applicable Environmental, Social, Health and Safety, Labor and Safeguard policies;
- Prepare the required documentation by the Financiers (AfDB), UETCL and SSEC such as monthly and quarterly progress reports, project completion report, etc.
- Address to UETCL and SSEC issues identified by other project stakeholders, including E&S audit reports and concerns from high-level project oversight committees.

The Consultant must ensure that all the environmental and social impact mitigation and monitoring measures as stipulated in Project's Environmental and Social Impact Assessment (ESIA) and the Environmental and Social Management Plan (ESMP) are appropriately executed by UETCL/SSEC and contractors.

The Consultant shall perform periodical environmental and social monitoring (at least every 3 months) after commencement of the construction and during all stages of the Project. A specific section for environmental and social monitoring shall be dedicated in the monthly and quarterly reports.

The monitoring will be in the forms of both desk and physical activities:

- ESMP review;
- Contractor ESHS related plans review;
- Contractors' ESHS compliance monitoring through visual inspections, check list, KII interview;
- Grievances redress monitoring through the consultation of GRM register and interviews with stakeholders;
- RAP performance monitoring through visual inspections, check list, KII interview;
- Periodic consultation with key stakeholders.

The Consultant, based on the feedback from stakeholders and the outcomes of inspection, may propose remedial action to UETCL/SSEC in order to comply with the requirements.

The Consultant shall perform, among others, the following main activities during the construction phase of the Project.

- a) ESMP desk review and updating assuring that recommendation from ESIA are adequately addressed to contractors for launching the tender process;
- b) Ensure that all contractors fulfill the requirements of the Environmental and Social Management Plan, including a specific environmental, social, health and safety management plan in their bid proposal in compliance with UETCL/SSEC's Environmental and Social Safeguard Policy and ESIA and ESMP;
- c) Checking proper storage and operation of equipment facilities and maintenance.
- d) Verify the effectiveness of on-site clinic and staff assistance for construction laborers and the provision of medical emergency facilities;
- e) Ensure that affected people are involved and participate in the planning and implementation process.
- f) Ensure that during the commissioning and operation phase the contractor has undertaken the final clean-up operation;
- g) Ensure that all construction contractors include a general environmental, social, health and safety management plan (ESHS-MP) in their bid proposal, based on the ESMP for the Project.
- h) Ensure that all construction contractors prepare an acceptable, detailed ESHS-MP and an HIV/AIDS Awareness and Prevention Plan prior to commencement of site preparation and construction activities and

- i) Ensure that all construction contractors implement the detailed ESHS-MP and HIV/AIDS Awareness and Prevention Plan and otherwise adhere to sound construction management guidelines.
- j) Submit a detail Environmental and social quarterly Progress report

The Consultant shall carry out the necessary environmental monitoring activities together with the environmental monitoring units of UETCL and SSEC.

The Consultant shall include in its monthly report the performed activities concerning environmental mitigation measures and shall complete the monitoring forms included as part of these Terms of Reference on a quarterly basis.

### **Non-Compliance and Corrective Actions**

Non-compliance is a tool applied by field staff whenever a failure to fulfil ESHS related objective and target have been found. Corrective action of non-compliance issues also identifies a solution and actions that prevent the recurrence of the problem.

Corrective action may include changes to work instructions (frequency of testing, test method, etc.), further staff training, etc. Non-compliance should be reviewed by, at least, the Environmental Expert and should form part of construction meeting agendas.

Non-compliance/corrective action report will be issued by the consultant in the monthly report and submitted to UETCL/SSEC for further actions with contractors.

It is the responsibility of the Contractors to immediately initiate corrective actions and, once completed, provide details of the actions undertaken on the non-compliance/corrective action report and return it signed to UETCL/SSEC within an agreed timeframe.

Non-compliance will be separated into four levels on the basis of importance, and communication requirements for the inspection will depend on the severity of the non-compliance situation. The four levels of non-compliance situations are:

- Observations of Non-Compliance (ONC)
- Non-Compliance Report Level 1 (NCR1)
- Non-Compliance Report Level 2 (NCR2)
- Non-Compliance Report Level 3 (NCR3)

### **Observation of Non-Compliance (ONC)**

In the weekly Site Inspection Reports (SIRs) the ESHS Staff will record the observation of non-compliances (ONCs).

### **Non-Compliance Report Level 1 (NCR1)**

The NCR level 1 is a non-compliance situation that is resulted from the overdue of three given deadlines specified in the Site Inspection Reports, but not believed to represent an immediate or severe threat to human and environment. Corrective actions are suggested and discussed with the Contractor's site construction supervisor during the site inspections, to be implemented not later than expected due date. Repeated Level 1 concerns may lead to the issuance of the NCR Level 2 if left unattended and overdue. The NCR level 1 will be prepared by Consultant ESHS Staff and signed by the Project Manager.

### **Non-Compliance Report Level 2 (NCR2)**

The NCR level 2 is a non-compliance situation that has potential significance and requires expeditious corrective action and site-specific attention, as well as raising of non-compliance level 1 that is unattended and overdue. Repeated Level 2 concerns may become Level 3 concerns if left unattended and overdue.

Non-compliance report level 2 is to be issued by Consultant ESHS Staff, verified by the Project Manager and approved by Project Director with suggested corrective actions to be implemented no later than expected due date. Special follow-up of corrective measures is required.

### **Non-Compliance Report Level 3 (NCR3)**

The NCR level 3 is a critical non-compliance situation, including observed significant damage on the environment or a reasonable expectation of very severe impending damage, as well as raising of noncompliance level 2 that has been reported in at least the last three SIRs and that has remained unattended and not resolved by the agreed deadline.

The NCR 3 is to be reported to the UETCL/SSEC Project Director for approval. When NCR-3 is identified and Contractor is acknowledged, implementation as per suggested corrective action shall be carried out as expeditious as practical for closure within the due date. In case of overdue, the financial penalty may be applied to Contractors in accordance with contractual obligations and/or agreements between UETCL/SSEC and Contractor.

### **Project's Cultural Heritage**

The Consultant will be required to supervise the Project's Physical Cultural Resources. The Consultant shall liaise, in an appropriate and timely manner, with the national cultural heritage authorities of Uganda and South Sudan on matters relating to the siting of project facilities to avoid culturally sensitive locations and with respect to "chance finds" during construction. The Consultant will facilitate cultural heritage awareness-rising training to contractors and other stakeholders before construction starts at site. All progress reports should contain information regarding the identification, protection and management of the physical cultural resources as well as on consultation with and participation of the relevant cultural heritage authorities.

#### **14) Factory Test Witnessing**

The equipment to be supplied under this project should be inspected and tested in the manufacturers testing stations. The Consultant shall be responsible for quality assurance of all equipment and material to be supplied under all contracts. The Consultant together with UETCL and SSEC personnel shall inspect and witness all factory tests for major equipment in order to ensure strict follow-up of the testing process. It is not required to assign permanently an inspector in the manufacturer country. Inspection of factory manufacturing shall be organized periodically. The Consultant price proposal for factory inspection shall include all Consultant personnel expenses, travel, and hotel and allowance expense (for minimum of 20 trips for UGANDA contract and 20 trips for SOUTH SUDAN contract accommodation 7 days per travel). Written reports shall be provided by the consultant on each test witnessed by him/her or together with UETCL/SSEC.

The procedure for testing should be prepared by the manufacturer/contractor in coordination with the consultant and should be reviewed and submitted to both clients four (4) weeks prior to the test date.

#### **15) Joint Site Meetings**

The Joint Project Manager/ Resident Project Manager and the Consultant staff shall hold site meetings regularly as required with the contractors' site representatives and UETCL's and SSEC's Staff. More in detail:

- Site meetings shall be done for every visitor and new employee on site.
- Toolbox meetings should be held at least weekly to discuss the performance of health and safety compliance onsite

The meeting shall deal with the following matters.

- Safety measurement and instructions
- Approval or rejection of executed work elements.
- Contractor's work schedule
- Contractor's work method,
- Temporary works and additional works (if any)

Minutes of the meeting shall be prepared and signed by the participating parties. Copies of the minutes shall be given to the participants and to the UETCL's and SSEC's Project Implementation Units. Other members of the Resident Engineer's field staff shall also attend the meeting.

The Joint Project Manager/ Resident Project Manager in UGANDA assisted by the Resident Manager in SOUTH SUDAN shall chair the liaison meetings with the respective UETCL and SSEC Project Managers with the contractors of each lot in UGANDA and SOUTH SUDAN respectively. The consultant shall be responsible for chairing the meetings and handling of the minutes. The main objectives of the meetings are to review the project progress reports, and to evaluate the actual site progress. The Joint PIU meetings shall be held every three months alternatively in UGANDA and SOUTH SUDAN. All transport, full board accommodation, insurance, alien fee and allowance of the Clients' personnel shall be borne by the Consultant. The number shall include the Joint Project Coordinator, all UGANDA and SOUTH SUDAN staff that are part of Project Implementation Team (PIT) members.

The allowance rate for accommodation for each staff including hotel and incidental expenses shall be considered USD 450 per day.

#### **16) Site Diary**

A one-page, daily duplicate diary shall be maintained on site by the consultant. The site diary shall include:

- The Safety conditions,
- The weather conditions,
- Major works completed, accepted or rejected,
- Written instructions given to the contractors,
- Problems encountered and
- Site meetings and other events, which have bearing on the project implementation.

#### **17) Reports General**

The Executing/ Implementing Agency and financier and NELSAPs of the Project consider of utmost importance the timely submission of project reports during the project implementation. All reports shall be submitted in 10 copies to the Executing/implementing agency with all required information for all sections of the line and substations. The format of the report should be discussed and agreed upon with the JPC. The Quarterly Progress Reports (QPRs) including implementation of the Environmental and Social Management Plan (ESMP) shall cover all aspects of Project implementation, including the status of progress against agreed implementation and disbursement schedules for all lots of the project. The QPRs shall also highlight issues affecting Project implementation and proper corrective actions.

## **18) Inception report**

The Consultant shall submit inception reports to the executing agencies. The inception report shall be submitted within one month of commencement of the consultancy contract. It will outline the Consultant's work plan, define the review and implementation schedule by task, specify submission dates for each one of the required reports in draft form, and assign the personnel by name and date period to each task. The proposed Project schedule shall be broken down by tasks and sub-tasks and presented in chart form in an acceptable form using Microsoft Project.

## **19) Progress Reports**

The Joint Project Manager of the Consultant shall prepare and submit monthly and quarterly progress reports to UETCL, SSEC and to the Joint Project Coordinator. The quarterly progress reports shall be prepared to satisfy the requirements of the respective financiers.

The Resident Project Manager of the Consultant in UGANDA shall compile, summarize and submit monthly and quarterly progress report to the Joint Project Coordinator as per the agreed formats of the JPC.

The Joint Project Coordinator shall submit the joint (common) monthly and quarterly progress report to the financier and NELSAPS and to the Managements of UETCL and SSEC.

The quarterly progress reports shall be prepared in accordance with the FINANCIER AND NELSAPS guidelines which shall be agreed by financiers of this project. The reports by contracts (UGANDA & SOUTH SUDAN) shall at least include.

Written description of:

- Progress of the works and expenditure to-date. Progress of the work during the month.
  - Future planned works and expenditure.
  - Summary of the prevailing weather conditions at site during the reporting period.
  - Technical problems, if any; with their remedies
  - Delays of any kind, if any
  - List of Consultant's and Contractors' personnel including UETCL and SSEC staff
  - List of machinery and equipment scheduled and made available of the works by the contractors; and
  - Any other issues, which could facilitate or affect the progress of the work.
- i) Tabulated summary of work progress
- ii) Graphical presentation of:
- Physical progress planned/actual.
  - Cash flow planned/actual
  - Expected future progress and expenditure; and
  - Labor force size.

Diagrams, Graphs, Illustrations should be color printed Project

## **20) Completion Report:**

After completion of works, testing and commissioning of installations, the Consultant shall prepare a Project Completion Report (PCR), outlining inter alia, achievements in relation to objectives and targets

## **21) Progress Payments**

The contractors shall submit to the Consultant, statement showing costs for executed works up to the end of the month. The form of the statement shall be in accordance with the standard format agreed by UETCL/SSEC and the Consultant. All relevant measurement sheets and quality schedules shall be submitted together with the statement signed by client's supervisors, employers' representatives and the consultant's site supervisors. The Resident Engineers of the Consultant shall compare the statement with their own records and solve issues of differences with the contractor's representative. The updated master copies of progress charts shall be submitted to UETCL and SSEC's Project Office along with the monthly statement, the progress charts, the duplicate sheet, the works diary, the monthly site financial statement, etc.

The Consultant Project Manager or the Deputy Project Manager shall prepare and sign payment certificates with the Project Manager of UETCL for works executed in UGANDA and with SSEC for works executed in SOUTH SUDAN. The disbursements shall be indicated in the progress report.

UETCL and SSEC shall check the monthly statement(s) endorsed by the respective Resident Project Managers of the Consultant and authorize the payment Completion and Operational Acceptance Certificate

The Consultant shall carry out final inspection in liaison with UETCL/SSEC and issue completion and Operational certificates.

## **22) Training**

### On the Job Training

UGANDA and South Sudan consider these contracts as an opportunity to train several relevant staff by attaching them to the consultant and the contractors as counterpart staff. The on-the-job training shall be conducted during the construction stage of the project in the contractor's design and manufacturing:

- a) On-job training on contractor's design approval by attaching UETCL/MEMD/SSEC's engineers during the design approval stage for the man-month allocated in Uganda/ South Sudan for the consultant design team.
- b) On-job training for supervision of construction works and project management during the construction phase for UETCL/MEMD/ SSEC's supervision staff in Uganda and South Sudan.

UGANDA and SOUTH SUDAN consider these contracts as an opportunity to train several relevant staff by attaching them to the consultant and the contractors as counterpart staff. The on-the-job training shall be conducted during the construction stage of the project in the contractor's design and manufacturing premises as well as at site.

- a) On-job training on contractor's design approval by attaching UETCL/SSEC's engineers during the design approval stage for the man-month allocated in UGANDA/ SOUTH SUDAN for the consultant design team.
- b) On-job training for supervision of construction works and project management during the construction phase for UETCL/SSEC's supervision staff in UGANDA and SOUTH SUDAN.

## 23) Specific Training

Considering the Regional Importance and

Complex Nature of the Project, the Consultant shall conduct special/in-depth training for UETCL, MEMD and SSEC engineers at his home office on the following topics:

Familiarization with planning and design covering the following areas;

- System Planning and Network Analysis(PSS/E or similar software for training to be introduced)
- Power System Protection and Automation
- SCADA and Tele-communication
- Power Grid Operation (load dispatching) and maintenance
- Scheduled and preventive maintenance of HV Line and substations
- Environmental & Social Impact Assessment, RAP, and implementation of ESMP.
- Regional Power trade
- Advanced methods for detailed surveys, Transmission line design, profiling and construction for surveyors
- Procurement guidelines, contract and project monitoring and management
- Contract drafting

The training shall be arranged for the following engineers for the duration of two weeks for each of them:

- Six transmission design engineers for UETCL, MEMD and SSEC, two from each institution
- Two substation design engineers for UETCL and SSEC each
- Six system study/planning engineers for UETCL, MEMD and SSEC, two from each institution
- Two operation and maintenance engineers for UETCL and SSEC each
- Two load dispatching engineers for UETCL and SSEC each
- Two SCADA and telecommunications engineers for UETCL and SSEC each
- Two Surveyors to cover advanced methods for detailed surveys, Transmission line design, profiling and construction
- Two accounting and Commercial specialists for UETCL and SSEC each, taking care of future transactions for interconnection charges
- Two Procurement Specialist to take care of future projects.
- 2 Legal experts for contract drafting

The consultant should elaborate in his proposal the details of training for the client staff and training fields above. Relevant training necessary disciplines at each stage of the training relevant to the overall interconnection system bilateral, regionally and worldwide will be provided for the above staff.

The consultant's price for the training should include full board hotel accommodation, visa expenses, local transportation facilities, airport transport, out of pocket daily allowance amounting to USD 250 per participant for two weeks' duration and for each participant, Economy class air ticket (round trip air fare) between UGANDA and Consultant's home office and between SOUTH SUDAN and Consultant's home office.

## 24) Transportation

It is assumed that the construction contractors shall provide transportation for NEL SAP, Consultant, UETCL and

SSEC's site supervisors/project managers.

Construction Contractors shall designate two (2) vehicles (One in South Sudan and one in Uganda) to be used by NEL SAP team upon supervision visits and meetings to the project site.

Construction Contractors will supply the vehicles within one (1) month after receiving the advance payments.

The Construction Contractors shall cover all the related costs to those supplied vehicles (insurance, maintenance, fuel, drivers, etc.) during the project supervision phase.

## **25) Project Completion Report (PCR)**

Upon completion of the project construction activities, the Consultant shall prepare a Project Completion Report (PCR) in accordance with Financier and NELSAPS' requirement. The PCR will form a comprehensive record of the design, construction and erection works accomplished including:

- i) A description of changes or modifications to the design,
- ii) Problems encountered and solutions adopted,
- iii) Overall construction volume, quantities and costs and
- iv) Lesson learned

## **26) Removal and/or Replacement of Personnel**

Except as the Client may otherwise agree, no changes shall be made in the Key Personnel. If, for any reason beyond the reasonable control of the Consultant, such as retirement, death, medical incapacity, among others, it becomes necessary to replace any of the Key Personnel, the Consultant shall provide as a replacement a person of equivalent or better qualifications", the Consultant should be assured that the proposed key personnel for this consultancy service agreement should be available for the duration of the contract. Therefore, after contract award, the consultant cannot issue a request for replacement of any key personnel, unless it is beyond the Consultant's reasonable control such as retirement, death, and medical incapacity which shall be proved to have happened. The Consultant, when nominating the key personnel on his technical proposal, should carefully check the medical fitness and the age of the key personnel to avoid unnecessary dispute with the Clients for replacement of the key personnel after contract award. This issue has become of prime importance from recent experience and has become intolerable any more for the clients.

The Consultant's Joint Project Coordination Office, Site Organization and Home Office shall comprise of the following key personnel but not limited to:

The Consultant team shall include:

## **27) Home Office staff**

- Project Director
- Transmission line Design Engineer
- Civil works engineer
- Substations design engineer
- Protection systems design engineers
- Communication design engineers
- Control Systems and SCADA Design Engineers
- Grounding Electrode Design Engineer

## **28) Project Offices in UGANDA and in SOUTH SUDAN and Site Staff**

- Resident Project Manager
- Project Site Manager
- Transmission Line construction/erection work supervisor (Civil and electrical Engineer)
- Substation test and commissioning engineer
- Protection, Control and SCADA commissioning Engineer
- Distribution engineer
- Environmentalist
- Social Specialist
- Surveyor

## **29) Man-Month Allocation**

The Consultant shall indicate in his proposal sufficient man-months for proper execution of the project. Considering the technical and financial evaluation, the contract shall be awarded to a single consultant whose entire result reflects the evaluation criteria. The Consultant should assume that all contractors should be mobilizing at the same time to all Project sites. Construction of the transmission lines and stations

shall progress in parallel in all Project locations and all interfaces shall be carefully coordinated and monitored as envisaged below.

The Consultant shall provide a schedule with breakdown for the various activities called for in the TORs, including the home office and field activities. The consultant should clearly indicate the man- months to be spent on activities in Project Site in UGANDA, in SOUTH SUDAN and Home Office. Separate Staff shall be assigned for the work in UGANDA and in SOUTH SUDAN. The man months for UGANDA side activities and SOUTH SUDAN side activities shall be indicated separately. The consultant will be evaluated with the total man-month proposed for both countries.

Since UGANDA and SOUTH SUDAN are beneficiaries of two separate loans, for proper administration and disbursement of the contracts, two separate contracts will be signed with the consultant for UGANDA and SOUTH SUDAN corresponding to services to be provided in each country. The minimum allocated man-month shall not be less than 614 Man-months. The estimated man- months by the clients are as indicated in the table below.

The Consultant must propose and provide a schedule with a breakdown for the various activities called for in the TORs, including the home office and field activities.

The consultant should clearly indicate the man-months to be spent on activities in Project Site in UGANDA and SOUTH SUDAN and Home Office. The site man-months shall be based on the activities in the two countries. The minimum proposed man-months by the Consultant shall not be less than the estimated man- months by the clients for each key personnel and activity involved.

### 30) Project Supervision and Management - Estimated Minimum Man-months

No.	Number of Key Staff	No	Estimated Man- Month			Total Man-months
			Home office	In Uganda	In South Sudan	
	<b>Project Office and Site Office in UGANDA and SOUTH SUDAN</b>					
	<b>Home office Staff</b>					
1	Project Director	1		1	1	2
2	Transmission design engineer	2		6	6	12
3	Substation civil work Engineer	2		6	6	12
4	Substation Equipment Design Engineer	2		6	6	12
5	Substation Protection and Control Design Engineer	2		3	3	6
6	Communication and SCADA Design Engineer	2		2	2	4
No.	Number of Key Staff	No	Estimated Man- Month			Total Man-months
			Home office	In Uganda	In South Sudan	
7	Contract Engineer	2		2	2	4
8	Other Support Staffs	3		3	3	6
	<b>Sub Total</b>	16		<b>29</b>	<b>29</b>	<b>58</b>
	<b>Project Office and Site Office Staff</b>					
1	Resident Project Manager, Gulu	1	0	36	0	36
2	Resident Project Manager, Juba	1	0	0	36	36

## Terms of reference

3	Substation Electromechanical Supervision Engineer (3 for Uganda Project substations each 18Man-Month and one for South Suda 18 man month)	4	0	54	18	72
4	Substation Civil Work Supervision Engineer (3 for Uganda Project substations each 12Man-Month and one for South Suda 12 man month)	4	0	36	12	48
5	Communication and SCADA Commissioning Engineer	2	0	3	1	4
6	Substation Protection and Control /Commissioning Engineer	2	0	3	1	4
7	Transmission Line Supervision Engineer, one for UGANDA 22 Man-month and one for SOUTH SUDAN 22 Man-month (one supervisor per lot)	2	0	22	22	44
8	Health, Safety and Environment (HSE) Expert	2	0	26	26	52
9	Environmental Expert	2	0	10	10	20
10	Social Expert	2	0	10	10	20
11	Local Engineers assistant eight for UGANDA-3TL, 3SS. For SOUTH SUDAN –One for TL, one SS	8	0	156	52	208
<b>12</b>	Surveyor	<b>2</b>	<b>0</b>	<b>6</b>	<b>6</b>	<b>12</b>
13	Other support staff	6	0	6	6	12
	<b>Sub Total</b>	<b>38</b>		<b>368</b>	<b>200</b>	<b>568</b>
<b>Total Minimum Man-month</b>				<b>397</b>	<b>229</b>	<b>626</b>

### Qualifications

The Consultant must be highly qualified and should have sufficient reference in design, specification and Bidding document preparation, contractor's design review and approval and supervision of HV interconnection projects and for that purpose should submit evidence of firm's previous experience in works associated with supervision and construction management, training and technology transfer of HV interconnection projects and specifically of projects located in Africa if any.

The Consultant project director, Joint Project Manager, Resident Project Managers shall have extensive experience in Project management of transmission line and substations Projects and Resident Engineers shall have extensive experience in transmission line and substations Projects.

The Joint Project Manager should have a minimum of 15 years of experience in project management role, the Resident Project Managers should have a minimum of 10 years of experience in project management role and the Resident Engineers should have at least 10 years of experience in transmission line, substations projects.

All supervision staff should have adequate experience outside of their country like the project area. In addition, it is required that all field personnel of the Consultant be proficient in international communication skills, especially in English language.

All Engineers, lead surveyors, lead environmentalists that are part of the Supervision Consultancy should be registered by the respective Uganda registration bodies; Engineers' Registration Board (ERB), Uganda Surveyors Registration Board (USRB), National Environment Management Authority (NEMA)

The technical and financial proposals should clearly allocate separate Man-Months to each client (UETCL and SSECC).

The Consultant should prepare and submit a description of the organization planned to be set up for the project and the list of his key personnel with their Curriculum Vitae (CV) to be assigned to work in UGANDA and SOUTH SUDAN for effective supervision and project management of the project.

### 31) Consultant's Fee

Fees and Expenses of the Consultant shall include:

- a) Home Office Coordination.
- b) Joint Project Coordination Unit, Supervision and Management
- c) Project Implementation Units and Site Organization Supervision and Management
- d) All travel expenses.
- e) All personnel expense.
- f) All field expenses including working equipment and materials, house accommodation, etc. for the Project Manager and Deputy Project Managers
- g) Expenses of the workshop Meetings including, travel expenses, accommodation, meals, international transport, allowances/per diem, travel insurance cost of venue, etc.
- h) Project Office Costs

The Financial Proposal shall be clear and formal as possible with breakdowns of each subtotal into remuneration, reimbursable, miscellaneous and grand total. The evaluation will take care of consideration for all items on the same basis and on equal ground for comparison. All items in the Technical Proposal incurring expense must be supported with a corresponding financial proposal

### 32) ORGANIZATION OF OFFICES

It is required that the Consultant establishes main Project Offices located in Kampala and Juba as well as site offices in Gulu and Nesitu to make it easy for project staff to access information as well as making execution of the consulting activities as defined in the scope of work run smoothly.

The site offices shall have enough space and furnishings to accommodate the staff of consultant and counterpart personnel. Communications facilities including Wi-Fi internet shall be provided

Joint Project Implementation Team meetings will be held at the consultant's offices alternatively in Kampala/Gulu and Juba/Nesitu. The offices in both countries shall therefore have enough space, furnishing and equipment for this purpose.

The Consultant shall provide for the entire duration of the Contract for the sole use of the Clients and the consultant's personnel fully furnished, air conditioned, sound and weatherproof offices complete with all electrical fittings, plumbing and sanitary systems clean and provided with windows to give a sufficient supply of natural light.

The Consultant shall provide site offices with at least 100m<sup>2</sup> in Gulu and 100m<sup>2</sup> in Nesitu of usable floor area and, in addition, adequate toilets and shower/washrooms each approximately 5m<sup>2</sup>. The toilets and shower-rooms shall be equipped with the following:

- Two WC compartments with low-level suite and toilet roll holder.
- Two shower units.
- One wash hand basin with mirror, and towel rail.
- One bowl type lighting fixture.
- Water supply.

The office block(s) shall accommodate all project staff/persons and include adequate parking for at least five (5) vehicles. The office block(s) shall be soundly constructed and include kitchen facilities. Drinking water, electricity, drainage shall be provided and all charges in respect of these shall be paid by the Consultant.

The furnishing of the office block(s) shall be subject to the approval of the Employer(s). The office block (s) shall be provided with the following minimum equipment:

Item	Description	Quantity in Kampala/Gulu Project Office	Quantity in Juba/Nesitu Project Office
1	Office Table	6	6
2	Swivel arm chair	12	12
3	Table for Meeting room (8 People for Juba/Nesitu, 12 for Kampala/Gulu)	1	1

## Terms of reference

4	Chairs for meeting room	12	12
5	Filing cabinet for A4 hanging file	1	1
6	Bookshelves	4	4
7	Pin board	1	1
8	Storage locker	1	1
9	Drawing table	1	1
10	Air-Conditioner (Split Units )	2	2
11	Heavy duty photocopying machine (A4 and A3 size),	1	1
12	Set of window curtains for all windows	1 set	1set
13	Coffee and tea maker	1	1
14	Refrigerator	1	1

The construction contractors shall provide on a 24-hour basis, the vehicles specified in the Price Schedules for the use of the consultant and the clients' project staff. Details of the vehicles, facilities, services, repair and maintenance including drivers and other persons such as mechanic(s) etc. are included in the construction bidding documents.

### **33) SERVICES TO BE PROVIDED BY THE EMPLOYER**

The Employer(s) shall also avail staff who shall work closely with the Consultant and represent the Client(s) and assist in provision of existing project information and data when required, participate in the review and approval of detailed designs and any submissions by the EPC contractor(s) that require approval, follow-up on the site works, monitoring environmental implementation plans, participate in installation, commissioning and witnessing tests including factory acceptance tests.

These staff shall, however, be under the control of and be paid by the Employer. They shall not be held responsible for any failure of the consultant to deliver the project with the desired quality.

Annex 1 Project Implementation Structure

## Terms of reference

