



THE REPUBLIC OF UGANDA

MINISTRY OF ENERGY AND MINERAL DEVELOPMENT

GRID EXPANSION AND REINFORCEMENT PROJECT (GERP)

**TERMS OF REFERENCE FOR RECRUITMENT OF A CONSULTANCY FIRM FOR POWER
SUBSECTOR SECTOR SKILLS STRENGTHENING STUDY**

1. BACKGROUND

1.1 POWER SECTOR BACKGROUND AND INSTITUTIONAL SETUP

The Uganda power sector has experienced far reaching reforms since 2001 when the vertically integrated Uganda Electricity Board (UEB) was unbundled into three companies, namely, Uganda Electricity Generation Company Limited (UEGCL), Uganda Electricity Transmission Company Limited (UETCL) and Uganda Electricity Distribution Company Limited (UEDCL). These three public enterprises own assets most of which were owned by UEB prior to its unbundling. The reforms culminated in the establishment of an independent Electricity Regulatory Authority (ERA) to regulate all sector activities, and the Electricity Disputes Tribunal (EDT) to deal with arbitration of cases in the sector. A Rural Electrification Board (REB) was established in 2001 to oversee the implementation of rural electrification activities, with the Rural Electrification Agency (REA) as its secretariat.

The Ministry of Energy and Mineral Development (MEMD) is responsible for policy formulation in the sector, and the private sector plays significant roles in power generation and distribution. UEGCL's Kiira and Nalubaale hydropower plants were leased to Eskom (Uganda) limited in 2002 for 20 years while UEDCL's distribution assets were leased to Umeme Limited in 2005 for 20 years.

Presently, independent power producers (IPPs) account for over 50 percent of Uganda's generation capacity and include Bujagali Energy Limited, Hydromax Limited, Electromaxx (U) Limited, Jacobsen (U) Limited and several others that generate electricity mainly from renewable energy resources. Electricity distribution companies, also referred to as Service Providers, include Umeme Limited, West Nile Rural Electrification Company (WENRECo), Uganda Electricity Distribution Company Limited (UEDCL), Bundibugyo Electricity Cooperative Society (BECS), Kyegegwa Rural Energy Cooperative Society (KRECS), Pader-Abim Community Multi-Purpose Electric Cooperative Society (PACMECS) and Kilembe Investments Limited (KIL).

The unbundled electricity sector is based on the "single buyer" model where the transmission company, UETCL, is the sole buyer and wholesaler of electricity from generators that are connected to the national grid and is also responsible for import and export of electricity. UETCL then sells electricity to the distribution companies at a Bulk Supply Tariff approved by ERA. Umeme Limited is the largest distribution company, with a distribution market share of more than 90 percent and over 34,000 km of electricity distribution assets covering the major load centers under its management.

Significant growth has been achieved in the power generation, transmission and distribution segment since 2003. Installed power generation capacity has increased from about 380 MW in 2003 to 850 MW in 2016 and now 1,182 MW in May 2019 and energy sales have increased from 2.521GWh in 2003 to 3.9GWh in 2018.

The sector continues to grow power network assets in order to meet national development targets underlined in different policy frameworks that include among others Vision 2040, National Development Plan II and Electricity Connection Policy 2017. However, the creation and growth of sector assets is not in tandem with the sector skills development to raise necessary capacity requirements to manage the sector.

In effect MEMD is seeking to address a concern where the exponential growth in the power supply industry is not being matched with the rate at which industry capacity and competence service the sector needs and ensure sector performance sustainability. On the other hand, MEMD and the Private sector continue to invest substantially in the development of infrastructure whose benefits can only be secured through continued expansion of sector Human Resource capacity. MEMD is therefore seeking a holistic capacity development strategy in which a large component should be predicated upon in country capacity for delivery. This will increase self-reliance, skills development continuity and savings on resources expended on foreign resources and ultimately developing

industry class competence in the region for training and development , service export into the region and beyond.

1.2 SKILLS DEVELOPMENT IN THE POWER SECTOR

Before restructuring of the Ugandan power sector, capacity building of the power sector was a sole responsibility of Uganda Electricity Board (UEB). UEB had a training approach and programmes to support sustainable development of different expertise for smooth running of the power sector at the time given its scope of responsibilities .

The Unbundling of UEB in 2001 broke the sector into three segments Generation , Transmission and Distribution, save for transmission the other two were put primarily in private sector hands and thus constrained the investment for public good in continuous skills development . This created a huge gap in overall planning, coordination and development of expertise to run the power sector. While the generation and distribution segments have grown exponentially in investments and operations over the last couple years, training and development of technical capacity and skilling the industry has not received similar attention. This has created a shortage of technical personnel and consequently high staff turnover in various Agencies. Worst still, the new players in the energy sector or those without financial muscle are out competed in the market for skills and experience to run their respective power infrastructure.

Currently, some level of capacity building is being undertaken; however, in a more generic way, based on individual institutional and or project requirements and ability as such this does not take a sector wide holistic approach looking at the immediate and long-term requirements for sector sustainability. It is timely that a sustainable sector wide approach be adopted to support efficient and effective running of the energy sector that is growing at a very high rate. Skills enhancement in the power sector needs to be in tandem with the growth in scale and scope of the generation, transmission and distribution infrastructure assets within the country and advancements in technology .

1.3 CURRENT SECTOR INTERVENTIONS IN SKILLS DEVELOPEMENT

Efforts are being made by individual sector agencies to mitigate capacity gaps in their respective organizations as follows:

a) Umeme Limited

- Recruit graduate trainees that are attached to established staff within Umeme to get hands - on training in various aspects of the distribution network. However, the number of graduates handled under this programme is focused on specific needs of Umeme in particular and is limited by the resource envelop.
- Umeme sponsors a limited number of staff for training abroad including Zambia at Kafue Gorge Regional Power Institute. However, the staff turnover is high and such an arrangement is not sustainable.
- Umeme has made efforts to start a training center in Jinja that can be financed through the tariff but this has not taken off due to financial constraints.

b) Uganda Electricity Transmission Company Limited (UETCL)

UETCL has a technical training facility with three classrooms which was inherited from UEB. UETCL uses this facility to train technicians but the center requires major renovations and equipping with computer-based training laboratories and simulators among others. The center is solely utilized by UETCL to train Operation and Maintenance (O&M) technicians and therefore partly serves one out of eight departments of UETCL.

c) Uganda Electricity Generation Company Limited (UEGCL)

UEGCL is making efforts to establish partnerships with foreign institutions to offer training and develop the required technical expertise in maintaining and operating power plants that are currently under construction.

With the ongoing development of large hydropower plants in the country, development of various renewable energy power generation projects, the various planned and ongoing projects focusing at expanding the transmission and distribution network, individual agency efforts to develop human resource capacity may not generate the required numbers and expertise to support smooth running of the power sector. Sector wide approach to capacity building is therefore essential to provide a coordinated and holistic approach to meet the human resource needs of the power sector.

1.4 GOVERNMENT CONSIDERATIONS ON CAPACITY BUILDING IN THE ENERGY SECTOR

NDP II institutional analysis identifies inadequate institutional and regulatory capacity as a key challenge to the energy sector. NDP II Objective No.6 in respect to the Energy Sector is to build capacity of the sector. While there are various public and private institutions training students at various levels, the experience of the Ministry of Energy and Mineral Development (MEMD) is that the Diplomas and degrees attained do not necessarily translate into hands-on skills to efficiently and sustainably run the power subsector. Therefore, MEMD considers establishment of a skills based and hands-on training facility to cover the entire value-chain of power subsector to enable it effectively and sustainably implement its mandate. This facility will be based on an assessment of the current situation and understanding the gaps thereof and projecting through the medium-term and long-term skill requirements of the evolving and expanding sector with the attendant changes in technology.

2. OBJECTIVE OF THE STUDY

The objective of this study is to support the Ministry establish a Power Subsector hands-on skills development and enhancement plan to provide a holistic power subsector skill strengthening to enable the subsector effectively and sustainably implement its mandate. The Consultant will therefore undertake capacity strengthening needs assessment of the power subsector and evaluate processes and requirements to establish a training facility. The Consultant shall also recommend a comprehensive curriculum for the training facility to train in house staff, through apprentice, induction programmes, refresher programmes, hands-on training and other capacity enhancements on new technologies. It is envisaged that the facility will also be open to the private consulting and contracting companies to enhance skills of their staff to boost local content in implementing power

projects and operation and maintenance of related infrastructure. The Consultant will therefore review and build on findings of the Capacity Strengthening Study undertaken by the Ministry of Energy and Mineral Development in 2017.

3. SCOPE OF ASSIGNMENT

The consultant is required to undertake skills assessment of the power subsector and based on the findings, make recommendations in view of upgrading an existing training facility or establishing a greenfield facility for provision of power subsector skills development and strengthening programs through induction programmes, refresher programmes, apprentice, hands-on training and capacity enhancements on new technologies. The study will take in account, but not limited to, the following tasks:

- a) Review Government policies, legal and regulatory framework on skills development in the country and establish key stakeholders' requirements and procedure for establishment of a specialized power subsector training facility.
- b) Make recommendations on necessary changes to the legal and regulatory framework that will facilitate establishment of a specialized power subsector training facility.
- c) The consultant should conduct an appraisal of power sector facilities, infrastructure and operations' terrain taking account of current and future developments. This will enable him to determine under ideal circumstances and based on Best Practice and Prudent Utility Practices, what Skills and competences should be available to support the sector sustainably.
- d) The consultant should proceed to conduct a detailed review of the current (AS-IS) status of the sector with respect to skills, competences and numbers across the entire energy supply value chain (Generation, Transmission, and Distribution/Retail) Operations.
- e) The Consultant shall also study the evolution of emerging technologies in the Power Sector in Uganda and the readiness with which the sector is coping or lack of thereof through timely adoption and adaptation. This should include benchmarking with other external energy markets to borrow leaflets for Uganda
- f) Based on c), d) and e) above the Consultant should develop a detailed Gap Analysis clearly depicting where the power sector is (AS-IS) and where it would require to be (TO-BE) for efficient and effective service to the sector in the short, medium and long-term
- g) The Consultant will then draw up a costed action plan that represents the strategies and actions the Government/MEMD can take to bridge the gaps identified above. The Consultant should ensure that this action plan is comprehensive in terms of Scope, Scale, Depth of what should be done and funds required. In addition, the Consultant shall provide SWOT analysis on each action provided.
- h) Critically, the Consultant should provide clear guidance on how much of such an action plan will be covered through revamping or establishing a new National Power Sector Training facility and what may still have to be externalized or sourced from other Institutions within or outside Uganda.

- i) The Consultant will review all reports on previous studies and assessment done, ongoing and reinforcing aspects to be incorporated in this output. Such sources may include;-
- Reviewing previous sector studies with a focus on capacity assessment that include Power Sector Reforms study (July 2017), Power Distribution Subsector Diagnostic Review (2019) and Comprehensive Strategic Plan and Roadmap for the Establishment of a Training Center of Excellence for the Power Subsector in Uganda (December 2017).
- j) The Consultant will be expected to Consult widely with existing key stakeholders in the sector to establish what individual institutional plans and strategies are being implemented to address capacity challenges. These will include but not limited to; MEMD, UETCL, ERA, UEGCL, UEDCL, Independent Power Producers and Concessioners in the power subsector.
- k) The Consultant is expected to visit and assess the capacity of existing training facilities that may be owned or operated by some of the sector stakeholders and appraise them on adequacy of capacity to address capacity needs for the sector. This will also include benchmarking against the best of the breed such institutions in the region and beyond to borrow leaflets for the sector.

DELIVERABLES, DURATION AND IMPLEMENTATION SCHEDULE

4.1 Deliverables

- a) **Inception Report** setting out the background, purpose and scope of the assignment, approach and methodology, key deliverables, implementation schedule, and project team structure and composition. The inception report, together with the corresponding power point presentation, will be submitted to the Client for approval before the Consultant can proceed with the rest of the assignment. The Consultant will present the Inception Report to stakeholders in a workshop to be organized by the Client.
- b) **A Draft Report** which shall cover the entire scope of the study. The Consultant will present the Draft report to stakeholders in a workshop that will be organized by the Client. A consolidated list of comments from stakeholders will be provided to the Consultant for action.
- c) **A Draft Final Report** covering the entire scope of the study incorporating all comments received from stakeholders. The Draft Final Report will be presented to Top Management of the Ministry for consideration before submission to World Bank for approval.
- d) **Curricula** for the Power Subsector Training Facility.
- e) **A Final Report**, covering the entire scope of the study will be produced that incorporates final comments received from the Client.

4.2 Duration of the Consultancy

The assignment shall be done in a duration of twenty-eight (28) calendar weeks. The envisaged input of the consultant is 88 man- weeks

4.3 Delivery Schedule

It is expected that the assignment will be implemented in **28 calendar weeks**. The delivery schedule for the outputs is presented in **Table 1** below.

Table 1: Deliverable

Task	Description of Output	Timing from the Date of Contract effectiveness
A	<ul style="list-style-type: none"> Inception Report for Stakeholders' engagement and review Power point presentations for the draft Inception report 	week 4
	Draft Inception Report Workshop	week 5
	Final Inception Report incorporating Stakeholder's comments	Week 7
B	<ul style="list-style-type: none"> Draft Report Power point presentations for the Draft Report 	week 14
	Workshop on Draft Report	week 16
C	<ul style="list-style-type: none"> Draft Final Report Power point presentations for the Draft Final Report 	week 19
	Draft Final presentation to Top Management	week 20
D	<ul style="list-style-type: none"> Curricula for the Power Subsector Training Facility 	week 26
E	Final Report	Week 28

4. CLIENT'S INPUTS TO THE ASSIGNMENT

- i) The Client shall constitute a Technical Coordination Committee (TCC) to be appointed by key Stakeholders. The TCC will provide overall direct technical supervision to the consultant's team to ensure successful implementation of the assignment and preparation of credible reports.
- ii) The Client shall introduce the Consultant to relevant stakeholders on request .All expenses related to the assignment such as office space, travel (inland and foreign), accommodation and stationary shall be borne by the Consultant.

5. QUALIFICATIONS OF THE FIRM AND THE CONSULTANT'S TEAM

6.1 Consultancy Firm

The firm (or consortium of firms) is required to have the following experience:

- i) 10 years' experience in consulting work of which 5 years must be in similar assignments.

- ii) Proven and verifiable experience in Capacity assessment studies or managing large scale power sector capacity development projects in Sub-Saharan Africa or Emerging Economies
- iii) Experience in setting up specialized hand-on training facilities to enhance skills and/or operation and maintenance of power infrastructure.
- iv) Experience in the energy sector and knowledge of electricity sector skills requirements will be an added advantage.
- v) Evidence of availability of the required Experts for the assignment with valid experience in Capacity assessment, technical curriculum design, Refined Project Management Skills and Experience.
- vi) And any other mandatory requirements for a firm to provide services to the Government entity in Uganda

The Consultant's team shall comprise of the following **key personnel**:

- a) Project Manager (Team Leader)
- b) Human Resources Expert
- c) Power Sector Training /Curricula Development Expert
- d) Power Systems Planning Expert
- e) Financial Expert
- f) Legal Expert

6.2 Qualifications, Experience requirements, Roles and Man Months for Key Experts

The key experts are presented in Table 2 below;

Table 2: Qualifications, Experience requirements, Roles and Man Months for Key Experts

S/N	Expert	Months	Qualifications	Roles
1	Project Manager /Team Leader	6	Masters Degree in Engineering, Power Economics, or Project Planning, Management and Monitoring & Evaluation from a recognized University or Institution. He/She should have at least 15 years of direct experience in vocational training or developing skill enhancement programs. Should have participated in development of at least one specialized hand-on training facility to enhance skills in construction industry and/or operation and maintenance of power infrastructure.	Overall responsibility for the assignment. Oversee and supervise the whole assignment. Mobilizing all experts to deliver to the expectations of the client, attend all required meetings and submit all required reports.
2	Human Resource Expert	5	Masters Degree in Human Resource Management and Development or Industrial Psychology or related field from	Takes lead in human resource development aspects during the assignment in liaison with the

			a recognized University or Institution. He/She should have at least 10 years of direct experience in human resource administration and development. Should have participated in at least one assignment for development of a company/organization structure or development of a skills enhancement program.	Team Leader and the Client.
3	Power Training /Curriculum Development Expert	5	A Masters Degree in Engineering from a recognized University or Institution with a strong experience in Power Systems and Operations Training for Special Academy or (or vocational institute) of not less than 15 years. He/She should have at least 10 years of direct experience in developing vocational training curricula. He/She should demonstrate direct experience in two similar assignments.	Leads curriculum development aspects during the assignment in liaison with the Team Leader and the Client.
4	Power Systems Planning Expert	3	A Masters Degree in Power systems (Engineering) from a recognized University or Institution with a strong experience in Power Systems Planning at Industrial level or in a Large Regional or National Utility. He/She should have at least 10 years of direct experience in Power systems operations, Power sector planning and policy. He/She should demonstrate direct experience in two similar assignments.	Supports the rationalization of Ideas on Skills Development and Requirements for the Sector Vis-à-vis Recommended actions to be taken to bridge capacity gaps
5	Legal Expert	2	A degree in Law as a minimum from a recognized University or Institution with at least 7 years direct experience in policy and legal framework of education sector in Uganda. Should have a valid certificate to practice law in Uganda and should have participated in at least one (1) assignment in education policy and legislative review.	Take lead in the review of the policy, legal and institutional framework relevant to the technical training in Uganda and provide legal support to the Consultancy and

6	Financial Expert	2	A degree in Economics, Finance and Energy Economics from a recognized University with at least 7 years' experience in developing financing models for universities or vocational institution. He/She should demonstrate direct experience in one similar assignment.	Provide support in develop suitable financing model of the training facility to ensure sustainability.
---	------------------	---	--	--

6.3 Support Staff

The Consultant shall field any technical, non-technical and administrative staff to support Key Staff to enable the timely delivery of the assignment and to the required standard.

7 REPORTING REQUIREMENTS

The Consultant shall report to the Permanent Secretary, Ministry of Energy and Mineral Development through the Project Manager - Grid Expansion and Reinforcement Project (GERP).

A copy of each report shall be submitted directly to the World Bank Task Team Leader, GERP, Rwenzori House Floor 4, Lumumba Avenue, Kampala.

All deliverables in **Table 1** including work files, document files, databases, spreadsheets, drawings, and GIS data related shall be provided to the Client in electronic format (on CD) upon completion of the consultancy, in addition to 5 copies of the hardcopy reports. The electronic data formats shall be compatible with the latest versions of:

- (i) The Microsoft Office Suite;
- (ii) Auto CAD;
- (iii) Arcview GIS;
- (iv) Network analysis software (PSS© Sincal or compatible software).

Any other data formats shall be subject to prior approval by the client.

All assignment reports shall be submitted to the client in form of one (1) electronic copy and five (5) original hard copies. All documents to be submitted by the Consultant shall be in English.

8 PAYMENT SCHEDULE

All expenses related to the assignment that include among others office space, travel (inland and foreign), accommodation and stationary shall be borne by the Consultant. The payment schedule is presented in **Table 3** below;

Table 3: Payment Schedule

S/N	Deliverable	Payment %
1	Approved Final Inception Report	15
2	Draft Report	35
3	Approved curricula	15
4	Approved Final Report	35