

**Terms of Reference (ToR)**  
**for**  
**Consultancy Services for Setting up Electrical Testing Laboratory**  
**(Package No. S-10)**

**Background:**

The vision of the Government of Bangladesh is to provide quality electricity to all by 2021. Commendable achievement has been made in the power sector during the last decade in meeting the target. Power System Master Plan 2016 has been drawn up with a target to generate 60,000 MW by 2041. To achieve the Vision 2041, enormous number of power plants needs to be set up with huge expansion of transmission and distribution networks.

Despite tremendous growth in the Power Sector, Bangladesh does not have any accredited electrical testing laboratory (Low, Medium or High Voltage) for third party testing and certification. The growth in power sector encouraged many private sector companies to build manufacturing plants in Bangladesh to manufacture transformers, breakers, CT/PTs and switchgears. The tremendous growth in power sector requires transmission and distribution utilities to procure hundreds and thousands of power and distribution transformers with associated switchgears, electrical apparatus/equipment and line items. In absence of accredited electrical testing laboratory Electric utilities and private sector entities has to rely on certificates of foreign Electrical Testing Laboratory, which costs them a lot of foreign currency. To lesser the dependency on foreign testing laboratory, Bangladesh needs to establish an accredited high voltage electrical testing laboratory to provide world-class testing, inspection and certification services to the power sector.

The People's Republic of Bangladesh has received a fund from the International Development Agency towards the cost of the Rural Electrification and Renewable Energy Development II (RERED II) Project and it intends to apply part of the proceeds of this credit to payment under the contracts for appointment of consultant for "Setting up Electrical Testing Laboratory". Power Cell, therefore, intends to appoint an internationally reputed consultancy firm to accomplish the mentioned services by using World Bank fund under "TA for Strengthening and Development of Sustainable Power Sector in Bangladesh" project of Power Cell, Power Division, Ministry of Power, Energy and Mineral Resource.

**Objectives:**

The main objectives of this assignment are:

- a) Assess the potential for setting up a world class electrical product testing laboratory in Bangladesh.
- b) Design the institutional organization as an independent authority of the proposed laboratory for testing and certificating of High-Voltage, Medium-Voltage and Low-Voltage electrical equipment.

**Scope of Services:**

The scope of services should include, but not limited to:

- 1) To prepare a report enumerating its importance, necessity in the context of recent power sector growth, growth of private sector industries in power sector, importance in the national perspective, financial viability etc;

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- 2) To conduct detail feasibility study with cost estimates of goods, works and services and also environmental impacts;
- 3) To prepare electrical and civil/architecture conceptual design and list of all machinery and testing equipment including their specification;
- 4) To recommend and prepare management system of the testing laboratory. As an independent company, structure of the company with detailing organogram, management hierarchy, personnel with their job specification and overall formation of this autonomous independent body according to policy/legal aspects;
- 5) To incorporate the environmental issues to establish the lab with respect of country context;
- 6) To estimate land requirement for the laboratory including architectural design/layout of the building;
- 7) To review the organizational setup and testing facilities offered by reputed international testing laboratories;
- 8) To review the fees structure for the electrical tests carried out at these laboratories;
- 9) To prepare phasing of tests to be carried out at the laboratories;
- 10) To recommend/standardize the fees structure for each test;
- 11) To prepare all administrative and legal document necessary for setting up the laboratory;
- 12) To review the existing electrical equipment testing laboratory facilities by other utilities of Power Division and make linkage with these existing laboratory facilities of technical, financial, management and HR aspects.
- 13) To review the present capabilities of manpower in public sector utilities to carry out tests in the country;
- 14) To recommend short-term and long-term capacity building program for the recruited manpower;
- 15) To review procedure for getting international accreditation for laboratories;
- 16) To prepare an action plan to get international accreditation for laboratories;
- 17) To prepare necessary documents to get international accreditation for laboratories;
- 18) To prepare total cost estimate for setting up the laboratories;
- 19) To review the existing acts/policies/rules/regulations/guidelines on setting up electrical testing laboratories and recommend legal integration under the existing laws.

#### **Qualification Requirements for the Consultant:**

The consultant shall be a firm/company/partnership/proprietorship/any consortium firm. The individuals of the firm should have thorough knowledge of testing requirement of different electrical and mechanical equipment used in power generation, transmission and distribution sector and experience of working in a high voltage-testing laboratory.

#### **Key Staff Requirement:**

The proposer is expected to engage the following categories of key experts for the Project and CVs shall be submitted accordingly:

- ❖ **Team Leader (International) (Position-1, 6 Man-Months):** At least master degree in Electrical Engineering or graduation in relevant engineering degree from a recognized university with minimum 15 years working experience with 5 years' experience in electrical equipment testing lab.

- ❖ **Electrical Expert (International) (Position-1, 3 Man-Months):** At least B.Sc in Electrical/Power Engineering/EEE/Mechanical from a recognized university with minimum 15 years working experience in electrical equipment operation and maintenance with 5 years' experience in electrical equipment testing lab. She/He must have electrical testing accreditation or certification.
- ❖ **Electrical Expert/Deputy Team Leader (National) (Position-1, 6 Man-Months):** At least B.Sc in Electrical/Power Engineering/EEE/Mechanical from a recognized university with minimum 15 years working experience in Power Sector with 5 years' experience in electrical equipment operation and maintenance. Working experience in electrical testing equipment labs will be preferred.
- ❖ **Civil Expert (National) (Position-1, 2 Man-Months):** At least B.Sc in Civil Engineering/Construction/Architecture from a recognized university with minimum 10 years working experience in structural design, drawing and related civil works.
- ❖ **Mechanical Expert (National) (Position-1, 4 Man-Months):** At least B.Sc in Mechanical Engineering from a recognized university with minimum 10 years working experience in power plants.
- ❖ **Financial Analyst (National) (Position-1, 2 Man-Months):** At least Master degree in Finance from a recognized university with minimum 12 years' professional experience with 5 years' experience in power and energy sector.
- ❖ **Environmental Specialist (National) (Position-1, 3 Man-Months):** At least Master degree in Environmental studies from a recognized university with minimum 12 years' professional experience with 5 years' experience in power sector.
- ❖ **HR/Management Expert (International) (Position-1, 4 Man-Months):** At least graduation in HR, Admin, management or any Engineering from a recognized university with minimum 15 years' professional experience with 5 years' experience in power sector.
- ❖ **Institutional and Capacity Building Specialist (International) (Position-1, 3 Man-Months):** The Institutional Capacity Building Specialist must have a Bachelor's degree in Business/ Public Administration, engineering or finance, or a related field from a recognized university and minimum 10 years of working experience in institutional development, specifically on capacity building, training, or academic teaching. The expert should have deep understanding and knowledge about the power equipment and electrical testing equipment labs.
- ❖ **Legal Expert (National) (Position-1, 3 Man-Months):** At least Bachelor of law from a recognized institute or from a recognized university with minimum 10 years' professional experience and with 5 years' experience in power sector in power and energy sector. Knowledge of power sector act/policy/rules/regulation/guidelines and related others will be preferred.

**Duration of the Assignment:** The duration of this assignment will be 06 (six) months.

#### **Reporting Requirements and Time Schedule for Deliverables**

- Inception Report within 15 (fifteen) days of signing of contract.
- Stakeholder meeting on receipt of Inception Report.



- Interim Report including all conceptual design/layout of building & laboratory, testing equipment checklists within 2(two) months of signing of contract.
- Stakeholder meeting on receipt of Interim Report.
- Draft Final Report including all design/layout of building & laboratory within 05 (five) months of signing of contract.
- Stakeholders meeting on Draft Final Report.
- Final Report within 06 (six) months incorporating comments from stakeholders. Major sections of the Final Report will be in separate volume.

**10(Ten) copies of each report has to be submitted along with a soft copy.**

**Person to receive the Report:** Director General, Power Cell

The consult will report to Director General, Power Cell for billing and contract management. For work execution purposes, the consultant will work with all the utilities under the Power Division.

#### **Transfer of Knowledge (Training):**

The consultant shall conduct/recommend necessary local/foreign/on-job-training. The responsible & relevant personnel of Power Division, Power Cell and other utilities will be preferred for the training.

#### **Client's Input and Counterpart Personnel:**

- (a) Services, facilities and property to be made available to the Consultant by the Client:**

##### **Facilitation and Reporting**

The utility company will ensure access to the available pertinent information to this assignment. Consultant will work in close association with Power Cell and other relevant power sector utilities. A coordination mechanism will be set up to review progress, provide guidance and advice. The designated personnel of the entities will interact with the Consultant and provide data, arrange discussions and assistance as required. The Consultant will work under the guidance of Director General, Power Cell.

##### **Logistics Support**

Office accommodation, site visits, secretarial service or any other logistics services will have to be arranged by the consultant at his own costs.

- (b) Professional and support counterpart personnel will not be assigned by the Power Cell to the Consultant's team. Client will provide the following inputs, project data and reports to facilitate preparation of the Proposals:**

The consultant will have to collect relevant data and reports from the respective entities as required to successfully completing the study.

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