

Terms of Reference (TOR)
for
Appointment of Consulting Firm to Conduct Study for Strengthening BREB for Sustainable Rural Electrification (RE) System
(Package No. S-27)

1. Background

- 1.1 Bangladesh Rural Electrification Board (BREB) has been implementing the Rural Electrification (RE) Program in Bangladesh since 1978 under Power Division, Ministry of Power, Energy and Mineral Resources. BREB is responsible for planning, development, financing and installation of electricity distribution network throughout the rural areas of the country. It builds distribution network and handed over it to the Palli Bidyut Samities (PBSs) for electricity distribution and commercial operation as well as O&M. Currently 80 PBSs are in commercial operation. At present there are about 520,000 KM distribution lines, 1183Nos. of 33/11 KV Sub-stations and 11,10,568Nos. Pre-Payment meter have been installed to serve about 32 million consumers in the country. BREB has almost completed 100 percent electrification of 462 Upazilas under its jurisdiction. It is offtaking about 60% power of national demand to supply 32 million consumers which is 80% of the total consumers of the country.
- 1.2 Although 100% electrification is completed, quality and reliable power supply could not be ensured. At present uninterrupted power supply and improved customer service are the challenges of BREB. However, long radial lines, right of way problems in rural areas, inadequate dual source line, remote location of grid and constraint of redundancy in substation, bared overhead lines in the crowded and forest areas are the major causes of power interruption. However, distribution network, consumers and number of employees etc. are increasing gradually.
- 1.3 Government of Bangladesh has undertaken initiatives to promote renewable energy based distributed generation for grid-connected customers under incentive mechanism. Thus, net metering is one of the tools to popularize the renewable energy based electricity generation in the country. Under this net metering guideline, BREB designed to encourage distributed renewable energy development by allowing their customers to generate own electricity from solar or any other renewable sources. Hence, 261 net metering solar systems have been installed and the capacity is 11.47 MW peak.
- 1.4 Bangladesh suffers from floods, cyclones, storm, river erosion, earthquake, fire and tsunami etc. Cyclones and floods particularly caused massive damages of power supply system in the coastal areas of Bangladesh. Rise in temperature increases total power consumption and peak demand especially during the hot summer season. More frequent and severe extreme weather causes interruption in power system and damages of power infrastructure. A diversified, decentralized and climate resilient power system can reduce negative impacts of climate change on power system. Adaptation and mitigation strategies must be incorporated in the planning and development of new power infrastructure and strengthening of existing power systems. Implementation of Information and Communications Technology (ICT) based activities,

protection and control management system, modernization of distribution system including conversion of overhead system into underground system with state-of-the-art technology, conversion of outdoor type substation into Air Insulated Substation (AIS)/Gas Insulated Substation (GIS) substation, implementation of Geographic Information System (GIS) & Supervisory Control and Data Acquisition (SCADA) and installation of smart/pre-paid metering system to be considered for incorporation in the system.

- 1.5 BREB intends to strengthen and make Rural Electrification (RE) system sustainable for ensuring reliable and quality power for their consumer with quality services. Regarding the implementation of strengthening and sustainable Rural Electrification (RE) system in BREB and PBSs area, a consultancy firm will be appointed under "TA for Strengthening and Development of Sustainable Power Sector in Bangladesh" project of Power Cell, Power Division, Ministry of Power, Energy and Mineral Resources. The cost of the study will be borne from the fund of the World Bank.

2. Objectives of the Assignment

Hiring of a highly qualified and well-experienced consulting firm by conducting the study for strengthening RE System to ensure better customer services through reliable & quality power supply aligned with SDG goals. The main objectives of this study are:

- a) To overview existing RE system with strengths and weaknesses.
- b) To provide recommendations for uninterrupted and quality power supply to the customer.
- c) To make the PBS management system more effective and efficient.
- d) To make the PBS financially viable.
- e) To ensure better customer services.

3. Scope of Work

A consulting firm will be appointed to conduct the study for strengthening of BREB-PBS to ensure better customer services through reliable supply of electricity. The broad scope of the study shall cover the following activities:

- a) The consultant will review BREB-PBS distribution network system and recommend for strengthening the system including network redundancy for future sustainability.
- b) The consultant will study the distribution system in detailed considering full implementation of smart grid including GIS, SCADA-ADMS, conversion of outdoor to indoor AIS/GIS substation, network redundancy etc.
- c) They will study the need for conversion of overhead distribution system into underground system and recommend the list of areas where conversion is feasible.
- d) The consultant shall take into consideration the redundancy of the distribution and grid facilities.
- e) The consultant will conduct study on grid requirement, grid construction and transmission system needs analysis for PBSs.

- f) The consultant will study the financial status of the PBSs. They will analyze financial gap and recommend for attaining financial viability of the PBSs.
- g) They will conduct comparative study between PBSs and other distribution entities (e.g. DPDC, DESCO, WZPDC and NESCO). The sample size of the PBSs will be determined during pre-proposal meeting.
- h) The consultant will review the existing organizational structure of BREB-PBS's, departmental roles & responsibilities, personnel/officials of BREB and PBSs compared to other distribution utilities.
- i) Identify current and future challenges; outline possible recommendation to overcome those challenges.
- j) The consultant will develop a suitable financial model/tool for analysis of PBS financial state.
- k) The consultant will review the available IT infrastructure being used and suggest about the ICT based operation of PBS activities to ensure better customer service.
- l) The consultant will review the previous study and implementation of the recommendations.
- m) Consultant will recommend short, medium and long-term plans for strengthening BREB-PBS system in terms of technical, financial, institutional, HR etc.
- n) The consultant will discuss and finalize the scope of the implementation and the approach for phased implementation.
- o) The consultant will develop a comprehensive training program to enrich professional knowledge of Power Division, Power Cell and BREB-PBS personnel.

4. Team Composition & Qualification Requirements for the Key Experts

Consulting services are solicited from a firm experienced in conducting organizational/institutional development study in power sector. They should have similar experience to perform the services, experience in similar conditions, firm's capability and availability of appropriate skills key staff, availability of resources, relevant financial transactional experience. The Proposer is expected to engage the following categories of key experts for the study and their CVs shall be submitted accordingly:

(i) Institutional Expert (International)/Team Leader (Position-1, 6 person months): The Institutional Expert should have at least Master degree in business/public administration from a recognized university/institute. The expert must have a strong background and experience in institutional activities, law and legislation related to organizational structure etc. The expert should have minimum of 15 years of relevant and practical experience.

(ii) Power System Specialist (International) (Position-1, 4 person months): The Power System Specialist should have at least a Bachelor degree in electrical engineering from a recognized university with 15 years of experience in the power sector including power distribution network analysis, planning & design, system protection & coordination.

(iii) Economic Analyst (International) (Position-1, 4 person months): The Analyst should have at least Master degree in Economics/Finance/Business Administration or any relevant subject from a recognized university with a minimum of 10 years of experience in financial/economic analysis.

(iv) Power Distribution Expert (National)/Deputy Team Leader (Position-1, 6 person months): The Power Distribution Expert should have at least a Bachelor degree in Electrical Engineering from a recognized university with 20 years of experience in the power sector including 10 years in power distribution system.

(v) Environmental Expert (National) (Position-1, 3 person months): The Environmental Expert should have at least Master degree in Environmental Science or any relevant subject from a recognized university. The expert should have minimum 10 years of experience in the field of environment.

(vi) IT Expert (National) (Position-1, 3 person months): The IT Expert should have at least degree in Information Technology or Computer Engineering from a recognized university and should have minimum 10 years of experience in utility services. Should have experience in act and legislation issues of public organization.

(vii) Legal Expert (National) (Position-1, 3 person months): The Legal Expert should have at least Master degree in Law from a recognized institute. The expert must have a strong background and experience in act and legislation issues of public organization. The expert should have minimum of 10 years of relevant and practical experience.

(viii) Social and Resettlement Expert (National) (Position-1, 2 person months): The Social Specialist should have at least Master degree in Social Science from a recognized university and at least eight years of relevant work experience in social assessment and land acquisition/resettlement issues in infrastructure projects. Good command in International Standards including development partner agencies safeguard policies is also required. The expert should have minimum of 10 years of relevant and practical experience.

5. Duration of the Assignment

The duration of this assignment will be 6 months. The selected firms may engage supporting staff for this assignment.

6. Evaluation Criteria

- Screening of EOIs shall be carried out as per eligibility conditions mentioned in this document and based on verification of testimonials submitted.
- EOI will be evaluated for short listing inter alia based on their experience of handling similar type of project, strength of their manpower, financial strength of firm, approach, methodology & project plan and presentation/proposal to the selection committee whose decision will be final.
- Shortlisted firms will be issued Request for Proposal (RFP) Documents and asked to submit their detailed technical and financial proposal in a sealed envelope. Technical and financial proposal will be evaluated as per RFP document.

7. Deliverables and Time Schedule for submission of Reports

- a) Inception Report within ten days of signing of contract
- b) Stakeholder meeting on receipt of Inception Report
- c) Interim Report within three months of signing of contract
- d) Stakeholder meeting on receipt of Interim Report
- e) Draft Final Report within five months of signing of contract

- f) Stakeholder workshop on Draft Final Report
- g) Final Report within six months incorporating comment from stakeholders within a week of receipt of comments from the client.

10(Ten) copies of each report to be submitted along with a soft copy. The data, simulation cases, any Software based files and related documents, software & tools needs to be submitted with the related deliverables.

8. Reporting

Power Cell will act as the contract administrator while BREB will designate a contact to work closely with BREB-PBS for work execution, monitoring and supervision purposes.

9. Client's Input and Counterpart Personnel

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

BREB/PBS will ensure access to the available pertinent information to this assignment. Consultant will work in close association with BREB/PBS. The designated personnel of the entity will interact with the Consultants and provide data, arrange discussions and assistance as required.

Logistics Support

- (a) BREB will provide logistic support as far as possible. But office accommodation, site visits, secretarial service will have to be arranged by the consulting firm at their own expenses.
- (b) The Consultant will have to collect relevant data and reports from the respective departments as required to successfully completing the study.

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