

Terms of Reference (ToR) for Appointment of Consulting Firm for Establishment of Building Energy Efficiency Rating System for SREDA

1. Project Background

Electricity plays a pivotal role for the socio-economic development of a country. In the recent years Bangladesh has experienced booming economic growth, rapid urbanization and increased industrialization. Hon'ble Prime Minister has announced the 'Vision 2021' which encompasses the target of ensuring affordable and quality energy supply for all. In order to achieve the goal set by the government and attain the Sustainable Development Goals, the Government is giving equal emphasis on Energy Efficiency and Energy Conservation. Energy Efficiency & Conservation measures promote proper utilization of electricity, gas, water and others resources. It is known that one megawatt of energy saving is equal to reduction of more than one megawatt electricity generation.

Government has prepared an Action Plan to ensure Energy Efficiency & Conservation (EE&C) both at supply and demand side, where numbers of interventions have been identified for implementation with a time-frame. The Government has set the following targets for energy saving:

- ✓ 15% reduction in Primary Energy Consumption per GDP by 2021, and
- ✓ 20% reduction in Primary Energy Consumption per GDP by 2030

Large buildings are increasingly energy intensive, and require a national procedure to establish their energy efficiency. The Bangladesh National Building Code (BNBC), 2012 now a mandatory requirement, carries general recommendations on the building envelope that have an indirect impact on building energy efficiency, such as window to wall ratio, window openings, shading and roof insulation etc. On energy efficiency improvement requirements, the code carries specific recommendations on day lighting and supplementary lighting systems, lighting power density, occupancy sensors, lifts and escalators, renewable energy options and heating ventilation and air conditioning (HVAC) systems. Further, the code provides recommendations on water management systems, which too have an indirect impact on building energy efficiency.

Aligning with BNBC-2012, Sustainable and Renewable Energy Development Authority (SREDA) has recently formulated a "Building Energy Efficiency and Environment Rating (BEEER)" which is under the approval process of Power Division. This document is a guideline to evaluate, assess and certify a building from the perspective of energy consumption, efficiency improvement and conservation during the construction and operation phases. Now it is required to find out a mechanism to establish this rating system in Bangladesh. With this end in view, Power Division, Ministry of Power, Energy and Mineral Resources intends to appoint a Consulting firm to conduct a study for establishment/operational of BEEER for SREDA under Bangladesh Power Sector Development and Capacity Building (BPSPDCB) project. The cost of the study will be borne from the fund of the Asian Development Bank. The consulting firm will be recruited in accordance with ADB Guidelines on the Use of Consultants (2013, and as amended from time to time) using a Quality and Cost-Based Selection (QCBS) method. A quality-cost ratio of 80:20 will be applied for the final selection of the consulting firm based on the simplified technical proposals from the short-listed firms, and the consulting firm will be engaged using an output-based lump-sum contract.

2. Purpose of the Assignment

The main objectives of this assignment are:

- a) Popularize energy efficiency & conservation in buildings;
- b) Promote BEEER across the country;
- c) Attract investment in green building sector;
- d) Capacity building and conducting rating assessments;
- e) Achieve the target of energy efficiency

3. Duration and Location of the Services

The duration of the assignment is 06 (Six) months. The location of service will be whole Bangladesh.

4. Scope of Services

The scope of services includes the followings (including modifications proposed by the consultant, if any) in the scope of work to meet the objectives of the assignments.

- **Review documents**

Review the legal provisions and other regulatory documents/guidelines related to the establishment of BEEER in Bangladesh, and prepare a narrative on any additional regulations/guidelines required to be issued to facilitate the BEEER system, prepare drafts of such documents in consultation with SREDA and other stakeholders;

- **Implementation Methodology**

Review the structure of the BEEER system, implementation aspects of BEEER, and prepare the required draft documentation, discuss the procedure and features of the system with SREDA and all relevant regulatory agencies. As per the discussion prepare an implementation strategy to execute BEEER in public and private buildings;

- **Incentive System**

Develop an incentive mechanism following BEEER system, to attract the building owners, developers and dwellers to construct green buildings as regulatory guidelines. Also developing a financing mechanism with incorporation of grant, loan etc. for construction of green building;

- **Indicative Plans**

Prepare indicative plans with codes and guidelines, draft standards, etc., for the integration of solar PV and other green building measures to the sample building(s) as per BEEER;

- **Coordination Mechanism**

Develop a coordination mechanism among all stakeholders, in relation to the objectives, design, implementation mechanism, and implementation schedule for BEEER with other relevant codes and standards in Bangladesh;

- **Conduct Survey**

Lead a survey of buildings in Bangladesh to establish the baseline energy efficiency status, as well as to collect other useful information, that would assist in implementation of the BEEER system;

- **Financial & Economic Analysis**

Estimate cost of implementing BEEER in buildings (existing as well as buildings to be built). Also conduct Cost-benefit Analysis for development, construction and operation of such buildings and predicted return through-out the life-cycle of the buildings with an indicative comparison of similar constructions without BEEER;

- **Develop Application System**

Prepare the on-line submission formats, implement and operationalize the on-line application and evaluation procedure for applications for BEEER;

- **Conduct Trial Rating**

Conduct trial rating to test the rating system for the developed application, assess the results and make required recommendation of revisions of BEEER or any document prepared under this project;

- **Operational Procedure**

Conduct at least 10 (ten) such application procedures and evaluations, and rectify shortcomings, to achieve a fully operational BEEER system;

- **Manpower Development**
Conduct training for relevant staffs among the stakeholder agencies and institutions to adopt the BEEER system;
- **Training of Accredited Professionals**
Conduct (ToT) trainings for Professionals/relevant officials of SREDA and other concerned utilities to assess the site for evaluation of rating;
- **Workshop**
Conduct at least two workshops with relevant stakeholders to identify the major issues and study outcomes related to BEEER system establishment.

5. Detailed Outputs of the assignment (and applicable quality standards, where applicable)

5.1 Team Composition and Qualification Requirements for the Key Experts (and Any Other Requirements that Will Be Used for Evaluating the Key Experts under Data Sheet 21.1 of the ITC)

Consulting services are solicited from building energy efficiency experts experienced in carrying out such studies. Consulting firms should have experience to perform consultancy services, experience of similar assignments, experience in similar conditions, firm's capability and availability of appropriate skills among key staff, availability of resources, relevant transactional experience. The proposer is expected to engage the following categories of key experts for the Project and CVs shall be submitted accordingly:

Table 1: Summary of Estimated Consulting Services Requirements

Position	Person-months
International	
1. Building Energy Efficiency Specialist/Team Leader (1 person)	6
2. Energy Specialist (1 Person)	6
Sub-total international consultant person months	12
National	
1. Architect (1 Person)	6
2. Construction Expert (1 Person)	4
3. Policy Expert (1 Person)	3
4. IT Expert (1 Person)	3
5. Financial/Economic Analyst (1 Person)	3
Sub-total national consultant person months	19

Engagement period of all experts shall be for the duration of the assignment (6 months) out of which estimated intermittent input against each position are shown above.

- **Building Energy Efficiency Specialist/Team Leader (Position-1 International, 06 person months):** The Team Leader must have a Bachelor's degree in Architecture/Engineering or Masters in Energy or any other relevant subject with minimum 20 years of experience including minimum 5 years of experience in the field of building energy efficiency. S/he should preferably have experience of carrying out energy audit of 5 (five) large buildings. The expert should have sound knowledge of energy management, energy audit and energy efficiency & conservation (EE&C) related policy, rules and regulations of Bangladesh.
- **Energy Specialist (Position-1, International, 06 person months):** The Energy Specialist should have at least a Bachelor's degree in Electrical/Mechanical/Civil engineering and 15 years of experience in the energy sector. S/he should have minimum 5 years of experience in the field of energy management, efficiency and audit. The expert should have clear understanding on utility usage such as electricity, gas, water and other energies. S/he should also have sound knowledge on Heating, Ventilation and Air Conditioning (HVAC) system of buildings.
- **Architect (Position-1, National, 06 person months):** The Architect must have a Bachelor's degree in Architecture with minimum 10 years of experience including minimum 5 years of experience in the field of building energy efficiency. S/he should preferably have experience of designing energy efficient large buildings.

- **Construction Expert (Position-1, National, 04 person months):** The Construction Expert should have at least a Bachelor's degree in Civil engineering and 15 years of experience in the relevant field. S/he should have minimum 5 years of experience in civil construction of buildings. The consultant should have experience in construction/retrofitting of large building (both public and private). The Construction Expert will have good understanding on green building construction, LEED certification etc.
- **Policy Expert (Position-1, National, 3 person months):** The Policy Expert must have a Masters degree in Law from a recognized institute of higher learning. The expert must have a strong background and experience in Bangladesh rules, regulation, policy, guidelines, law and legislation related to building construction, energy management, energy efficiency, energy audit etc. S/he should have knowledge of electricity, water and gas sector of Bangladesh. The expert must have a minimum of 5 years of relevant practical experience.
- **IT Expert (Position-1, National, 3 person months):** The IT Expert will have at least a Master's Degree in Computer Science and Engineering/CSE or related degree and at least 5 years of experience in online application system development. S/he should have experience in govt. sector in IT related projects. Good command of application system related softwares are required.
- **Financial/Economic Analyst (Position-1, National, 3 person months):** The Financial/Economic Analyst must have a Masters in Economics/Finance/Business Administration or any relevant subject with a minimum of 5 years of experience in financial/economic analysis. The specialist shall be able to provide the cost benefit analysis of the energy efficient buildings in financial and economic terms. S/he should be able to estimate cost required for all works of the buildings. S/he should also be able to identify incentive mechanism for green building construction and maintenance etc.

5.2 Reporting Requirements and Time Schedule for Deliverables

- Inception Report within 1(one) month after signing of the contract;
- Interim Report within 3 (three) months after signing of the contract with the gap analysis in policy documents, additional suggestions, implementation methodology, incentive model, indicative plans and coordination mechanism among stakeholders to execute BEEER;
- Draft Feasibility Study Report within 04 (four) months after signing of the contract with development of an application system, outcome of assessment of 10 on-line applications, detailed financial analysis and incentive mechanism etc;
- Hold Stakeholders Consultation Workshop on Draft Feasibility Study Report within 05 (five) months after signing of the contract;
- Finalization of Study Report within 6(six) months after signing of the contract incorporating the decisions of Stakeholders Consultation Workshop on DFR.

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

Person to receive the Report: Project Director, Power Division

The consulting firm will report to Project Director, Power Division for billing and contract management. For work execution purposes, the consulting firm will report to the concerned utility company.

5.3 Relevant background information or materials for the assignment: Not applicable

5.4 Indication is downstream work is potentially considered: No downstream work is expected at the end of the study.

5.5 Training and capacity building requirement: Manpower training: To enrich experience of project personnel and official of Power Division, Power Cell and SREDA, arrangement for a training of approximately 15 personnel. The place of training will be determined in consultation with client.

5.6 Equipment procurement: —Not applicable

6. *Client's Input and Counterpart Personnel*

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

Facilitation and Reporting

Consultant will work in close association with Project Office, SREDA, Power Cell and other relevant 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 Consultants and provide data, arrange discussions and assistance as required. The Consultant will work under the guidance of Project Director.

Logistics Support

Project Office 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 costs.

(b) Professional and support counterpart personnel will be assigned by Project Director to the Consultant's team

(c) Selection of sites and concerned Utility: The sites and the concerned official under whose guidance the study will be carried out will be mentioned when RFP will be issued.

7. *Client will provide the following inputs, project data and reports to facilitate preparation of the Proposals:*

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