

# **Terms of Reference (ToR)**

**for**

## **Consultancy Service for Preparation of Wind map of Bangladesh (GIS based data platform creation, wind map preparation and dynamic data input system preparation)**

### **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. The Government of Bangladesh has taken diversified fuel-based power generation program to fulfill the vision and commitment of the government. Success within the last 11 years has been tremendous - generation capacity has reached to about 21,419 MW (including captive power) and peak generation has picked up to 12,539 MW.

Government prepared an Action Plan to ensure Energy Efficiency & Conservation both at supply and demand side, where numbers of interventions have been identified for implementation with a time-frame. To fulfill the GOB's vision and objectives of electrification, development of renewable energy resources will play a vital role, especially solar and wind energy. The government has taken appropriate measures for generating environment-friendly electricity from renewable energy sources. The Renewable Energy Policy 2008 has already been adopted with the target to generate 10% of electricity from renewable energy sources by 2021.

A GIS based software solution for the wind data mapping which can be used for wind history analysis, wind prediction and wind status monitoring. This data can be represented in GIS map, with full analytical modeling and historical data modeling. Through the usage of this specific GIS and custom developed software it is possible to estimate suitable installation sites.

To harness wind energy in a utility scale, Bangladesh government has done several wind data collection campaign in different regions of Bangladesh with the help of different develop partners. Develop partners also helped to build individual wind map for Bangladesh but these maps don't cover all the data assessment campaign initiated by GOB. To solve this issue and to facilitate the investors by providing a one stop service, SREDA has planned to create a GIS based wind map where all the wind data will be presented to investors.

### **2. *Purpose of the Assignment***

The main objectives of this assignment are:

- a) To represent the potential of wind energy of Bangladesh in GIS map ;
- b) To represent all the collected wind data in same platform;
- c) To attract investment in the wind power sector;
- d) To develop strong wind data platform in Bangladesh;
- e) To get a good idea about the Wind Resources, Roughness of the terrain and obstacles, Orography of the region and probable Environmental impacts from the same map.



### **3. Duration and Location of the Services**

The duration of the assignment is 2 (two) months including 7 days training for the client. Online support is needed to provide up to one year after handover the project to client. The location of service will be Dhaka, Bangladesh.

### **4. Scope of Services**

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

1. Design, Development, Hosting, maintaining a GIS based (tools like zoom-in and zoom-out, fit to screen, pan, search, measure, display mouse/cursor position in terms of latitude, longitude, overlay of different layers, wind information etc.) and Database oriented dynamic website. Security audit certification of the website by certified CERT-In vendor, is also a part of the present scope of work.
2. Design, Development and Installation of Wind data platform at the SREDA server in SREDA office with proper training provided to SREDA to run the system.
3. Design, development and deployment of a user-friendly representation of the wind analytical model to support the estimation of suitable wind installation sites.
4. A cloud based secondary dedicated VIP server to support the data backup and data model representation for at least 10 years and support at least 3 Tb/sec data transfer.
5. GIS Platform Support with Web APIs, Native APIs, Scripting APIs, REST API with official enterprise edition for Unlimited users for lifetime.
6. To support the software modeling 10 years IoT based server license for the high-volume data analysis.
7. Any other work/development/design/requirement etc which is not mentioned here in this document but are operationally essential and may arise during the execution of work/design/development/testing/hosting/ maintenance of the platform and linking with website.
8. The successful Bidder is also required to provide a turn-key solution, which would include supply / installation / development of the required software, hardware and other accessories & services thereof, for commissioning of the system (Website with integrated Mobile version, related hardware and software).
9. Providing need based technical support over phone up to one year.

### **System Requirements:**

1. System must be web-based and installed on SREDA server and a cloud hosted server managed by SREDA.
2. System must support interface, content, and workflow customizations by a trained system administrator without programming skills.



3. System should support open standards and be capable of integrating with new wind data and new installed wind data center.
4. Ability to customize end user forms to facilitate a more focused user interface for each group of end users.
5. System must have a dashboard style page configurable by each user for viewing assigned or monitored work activities. Should include: cost summaries, to do lists, charts, graphs, maps, reports, etc. should be configurable based on any number of search parameters defined by the user.
6. Ability to access in the field on a variety of devices, including laptops, tablets and smartphones. Mobile version of the software must be a lightweight version of the application.
7. System must support GIS Sever 10.1 or such and maintain compatibility with the latest version of GIS software.
8. System should utilize the GIS geodatabase as the only asset database/repository and link to it out-of-the-box without additional add-ons or software licensing. All asset geometry and attributes must reside in the geodatabase and should not require middleware, modules, or synchronization with the work management database.
9. System should support and detect relationship classes within the GIS.
10. System should provide a map interface, allowing the user to view assets, search, pan, zoom, locate, measure distances and include the capability to view information about assets' attributes from the GIS.
11. Ability to locate address utilizing GIS server locating services.
12. Ability to select assets in the GIS map and create work orders and inspections associated to the selected assets.
13. Ability to link with other wind map of Bangladesh if user wants to check another platform.

**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 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 consulting firm must have at least 5 years of experience in software development, website management, GIS based solution providing, public service related apps and similar assignments. At least completed 3 (three) similar software platform/helpdesk/database related assignments of GOB organizations as lead partner with a value of at least BDT 50 lakhs in the period of 2015-2020.



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

No	Consultant name	Number of consultant	Qualifications	Experience	Man-month
1	Team leader (National)	1 (one)	Minimum Master's degree in Computer Science and Engineering from any reputed university.	<p>Minimum 10 years of professional experience in related assignments.</p> <ul style="list-style-type: none"> <li>• Demonstrated experience on working with GIS/spatial technologies and leading the development of GIS-based software projects.</li> <li>• In-depth knowledge and expertise on GIS based assets and database management system, emergency management system, and application of geospatial technologies.</li> </ul>	2 (two)
2	System designer (National)	1 (one)	Minimum Graduate in Computer Science and Engineering or IT related disciplines	<p>Minimum 5 years of professional experience in software development or IT solution projects.</p> <ul style="list-style-type: none"> <li>• Demonstrated experience on development and implementation of GIS based solutions to infrastructure industries and database management.</li> <li>• Profound knowledge on development and use of the GeoDASH application or similar open source geospatial solutions in context to data representation.</li> </ul>	2 (two)
3	GIS Specialist (National)	1 (one)	Minimum Graduate in Civil Engg./ Urban Planning/ Disaster Management/ Geography and related discipline with adequate training in GIS applications.	<p>Minimum 5 years of professional experience in GIS application projects and similar studies.</p> <ul style="list-style-type: none"> <li>• Demonstrated experience in use of latest GIS tools and technologies and their application in urban resilience or development projects.</li> <li>• Knowledge of GIS based asset and database management systems, emergency management system and application of geospatial technologies.</li> <li>• Experience with development and use of web-based GIS based data platform.</li> </ul>	2 (two)



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

- Inception Report within 7(seven) days after signing of the contract
- Presentation of 1<sup>st</sup> version of the wind map within 30 (thirty) days after signing the contract
- Presentation of final version of wind map within 45 (forty five) days after signing of the contract
- Providing training within 45 (forty five) days after signing the contract.
- Completion report with user manual of the wind map platform within 60 (sixty) days after signing of the contract.

**5(Five) copies of each report has to be submitted along with a soft copy to Chairman, SREDA.** The consulting firm will report to Chairman, SREDA for billing and contract management.

### ***5.3. Deliverables from the consulting firm***

- GIS based Wind map of Bangladesh with proper training to input data and connect live server.
- Completion report with wind map user manual.

### ***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 concerned desk of SREDA. 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 Consultancy firm will work under the guidance of Director (Renewable energy), SREDA. SREDA will provide administrative support where needed.

#### ***7. Responsibilities of Consultant:***

**Services, facilities and property to be made available to the Consultant by the Client:**  
**Facilitation and Reporting:** Consultant will work in close association with SREDA. The consultant shall carry out the services as detailed in "Terms of Reference" in the best interest of SREDA with reasonable care, skill and due diligence with sound engineering, environmental safeguarding, administrative and financial.

Professional and support counterpart personnel will be assigned by firm to communicate with SREDA. Consultants will work jointly with proper consultation of SREDA team.

