

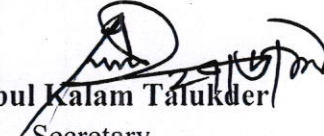


Bangladesh Energy Regulatory Commission
TCB Bhaban (3rd floor), 1, Karwan Bazar, Dhaka-1215, Bangladesh
www.berc.org.bd

Request for Expressions of Interest (EOI)

1	Name of Procuring Entity	Bangladesh Energy Regulatory Commission (BERC)
2	Procuring Entity Code	Not used at present
3	Procuring Entity District	Dhaka
4	Expression of Interest for Selection of	Consultancy Firm (National) - Lump-sum for Analyzing Requirements, Designing, Development, Installation, Implementation, Testing, Commissioning and Maintenance of Web-Based Integrated Uniform System of Accounts for the Gas Sector Production, Supply, Transmission and Distribution Entities/Utilities in Bangladesh.
5	EOI Ref. No.	28.01.0000.017.40.198.19.4045
6	Date	27/06/2019
7	Procurement Method	Quality and Cost Based Selection (QCBS) Open
8	Budget and Source of funds	Own fund
9	Development Partner(s)	Not Applicable
10	EOI Closing Date and Time	Date: 21/07/2019, Time: At 11:30 am
11	Brief Description of the Assignment	<ul style="list-style-type: none">• Perform in-depth study of the BERC Uniform System of Accounts, all reporting forms and analyzing requirements.• Design, develop, supply, installation, configuration, integration, implementation, testing, commissioning and maintenance of web-based integrated Uniform System of Accounts Software for gas sector exploration, production, supply, transmission and distribution entities/utilities such as Petröbangla, BAPEX, BGFCL, SGFL, RPGCL, GTCL, TGTDC, BGDCL, JGTDSL, KGDCL, PGCL and SGCL followed by BERC Uniform System of Accounts.• Develop user registration, related all entry forms and reporting forms;• Pilot Testing in two entities/utilities through entering live/real day-to-day data entry of a quarter and review & generate quarterly financial statement;• Adopt system in all entities/utilities through entering latest completed financial year data as opening balance of all entities/utilities and generate financial statement;• Conduct training with users;• Develop and submit a user manual documents and handouts for the users;• Provide maintenance and support to the nearly built system for 3 (three) years.
12	Experience, Resources & Delivery Capacity Required	<p>The bidder must have proven track record, technical and financial resources and operational expertise to undertake this work. As such, following are defined as minimum eligibility criteria:</p> <ol style="list-style-type: none">A. Having minimum 05 (five) years experiences in Software Business/ICT business as a Registered entity with Registrar of Joint Stock and Companies (RJSC) in Bangladesh;B. Must submit up to date Trade License, Income Tax and VAT certificate, Audit Report for last 5 Years and Bank Solvency Certificate;C. Must have minimum 3 Crore Credit Facility with local Schedule Bank;D. Must have 05 (Five) years practical experiences of developing web-based "Accounting System" solution having featured related to this system as major or partner solution provider in any Government and reputed large private organization in Bangladesh;E. Vendor needs to have at least 01 (One) existing running "Accounting System" Solution within last 05 (Five) years in any Government and reputed large private organization in Bangladesh. The solution must contain modules like Financial Accounting Management, Fund Management, Payroll Management, Fixed Asset Management, Inventory Management, Project Management and Budget Management;F. Having experience of 02 (two) web-based/online Accounting System with minimum contract value more than 50 (Fifty) Lac Taka under a single contract within last 05 (Five) years for any Government and reputed large private organization in Bangladesh;G. Needs to provide CV of full-time professionals and other personnel to be engaged in job and duly signed by the respective personnel. Key professionals are to carry out the assignment and required experience of the professionals are described in the ToR (Section-8).

		<p>H. Needs to have test environment ready with equipped devices at vendor's premises. Vendor's Headquarters' must be located at Dhaka;</p> <p>I. Management capacity (brochures and other documents/certificates describing similar assignment, experience, availability of appropriate professional staffs and experience among applicant's staff, resources to carry out the assignment);</p> <p>J. Logistic capability (well-equipped office space at Dhaka with necessary facilities);</p> <p>K. The firms may associate to enhance its qualifications, but should mention whether the association is in the form of a "Joint Venture" or of "Sub-Bidder". All members of such an association should have real and well-defined inputs to the assignment. The maximum number of the members in the association is limited to TWO. The Firm must declare one firm in this association as the "Lead Firm". Joint-venture agreement needs to have clear identification about each responsibility matrix;</p> <p>L. Consultant firm must have Quality Certificate Like CMMI/ISO, BASIS/BCS etc.;</p> <p>M. Must have CMMI L3 and ISO 9001:2015 certification;</p> <p>N. Preference will be given to ISO 27001: 2013 certified company;</p> <p>O. Company profile with management, business area, specialization, customer list (with name, contact address, phone number, e-mail address and the project details) must be submitted in supporting the qualification of the organization.</p>
13	Other Details (if applicable)	Interested firm(s) will be required to submit the EOI in closed format mentioning the name and the address of the applicant, EOI number & date. Addressing to the EOI issuing Authority, it is required to submit 3 (three) copies of document-1 (One) marked as "ORIGINAL" and other 2 (Two) as "COPY" in separate envelope in the form of book binding. It is required 1 (One) "Soft Copy" in CD/DVD. All the "ORIGINAL", "COPY" and "Soft Copy" shall have to cover within a single envelop to the address below on or before the EOI closing date & time. Upon receipt of EOIs the interested firms(s) those are deemed best suited to perform the assignment will be short listed. There after Request for Proposal (RFP) document will be issued to the short-listed firm(s). The consulting firm(s) will be selected based on Quality & Cost Based Selection (QCBS) method in accordance with the procedures set out in the PPA 2006 and PPR 2008 of GOB.
14	Association with foreign firms is	Not Applicable
15	Name of the Official Inviting EOI	Md. Rafiqul Islam
16	Designation of the Official Inviting EOI	Secretary, BEREC
17	Address of the Official Inviting EOI	Bangladesh Energy Regulatory Commission (BERC), TCB Building (3rd floor), 1 Karwan Bazar C/A, Dhaka 1215
18	Contact Details of the Official Inviting EOI	Phone: +88-02-9140125, E-mail: berc2003@gmail.com
<p>The Procuring Entity reserves the right to accept or rejects all or any of the EOI without assigning any reason whatsoever.</p>		
<p>The Tender notice and a Terms of Reference (ToR) in this regard is available at website www.berc.org.bd Help Line: +88-02-818 9832</p>		


Md. Abul Kalam Talukder
 Secretary

টেকসই উন্নয়নের
 জন্য
 আলানি নিরাপত্তা

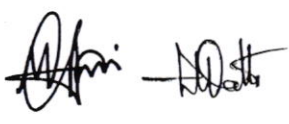
Terms of Reference (TOR)

Complete and Dedicated Web-Based Software for Uniform System of Accounts for Gas Sector Production, Supply, Transmission and Distribution Entities/Utilities in Bangladesh

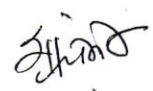


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1 Background

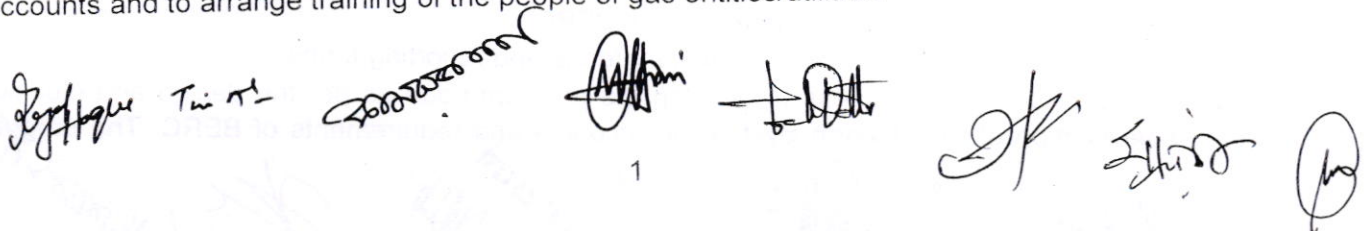
Bangladesh Energy Regulatory Commission (BERC or the Commission) has been established through the Bangladesh Energy Regulatory Commission Act, 2003 (the Act), as an independent and impartial Commission for the energy sector. It is independent in the exercise of its functions that are in accordance with the provisions as laid down in the Act. The objective of establishing the Commission is to create atmosphere conducive to private investment in the generation, transmission and distribution of electricity; transmission/transportation, distribution and marketing of gas and petroleum products, to ensure transparency in the management, operation and tariff determination in the energy sector, to protect consumers' interest and to promote the creation of a competitive market in the country. The functions of the Commission mandated by the Act, include, licensing, tariff determination, development of uniform system of accounts for all licensees, energy statistics collection and its management, consumers' interest protection, frame and enforcement of codes and standards, dispute settlement etc. As mandated by the Act the Commission framed Bangladesh Energy Regulatory Commission Uniform System of Accounts (Gas) (Downloadable from www.berc.org.bd) discussed and participation with the gas sector utilities. The BERC Uniform System of Accounts is a consolidating customized accounting system applicable for gas exploration, production, supply, transmission and distribution entities/utilities in Bangladesh such as Petrobangla, BAPEX, BGFCL, SGFL, RPGCL, GTCL, TGTDC, BGDCL, JGTDSL, KGDCL, PGCL and SGCL.

Presently the gas sectors utilities are using in same form or other different accounting system and some have their own software. Considering these, the Commission has decided to engage a Consultant (firm) for design, development and implementation a complete and dedicated web-based software for Uniform System of Accounts for gas sector entities/utilities and training on that.

2 Objective

The broader objective of the assignment is to provide a complete and dedicated web-based uniform accounting software for gas sector entities/utilities to accomplish the regular accounting related activities according to BERC Uniform System of Accounts. The entities/utilities will use the accounting system individually for accounting purpose.

Transparency and accountability are the key characteristics of regulatory decision making as well as corporate governance. Tariff related regulatory decisions are made based on accounting information of the utilities. Utilities day to day recording of financial transaction, compilation, and drawing of financial statements should be correct and homogeneous. To attain these, the Commission has developed Uniform System of Accounts. But the men behind who will do the job of book keeping and accounting must understand this system and do the job. With that objective in view the Commission has decided to for developed and implement a software for Uniform System of Accounts and to arrange training of the people of gas entities/utilities.

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3 Expected Benefits

- Provide a flexible, dynamic report of all in this kind;
- Save time and eliminate errors by providing easily accessible information;
- Increase efficiency and high satisfaction level monitoring;
- Eliminates the need to retype unchanged information by providing multiple; ways to search for records;
- Reduce cost of management and administration;
- Create a highly reliable and extensible information infrastructure;
- Improve productivity and workflow for handling financial reporting;
- Improve business performance;
- Cut out all possible errors and streamline financial reporting;
- Ensure financial reporting and adherence to comprehensive & controllable accounting;
- Spend less time on data consolidation and more time on data analysis;
- Accurate and faster access in data for timely decision making;
- Proper monitoring of the performance;
- Increase profitability of the concern by optimizing decision input;
- Reduce cost resulting from better planning, tracking and forecast requirements;
- Ease of data access with data integrity;
- Improve in productivity for statutory and regulatory reporting process;
- Availability of required information across the organization and other stakeholders;
- Gain strong fiscal control;

4 Scope of Services/ description of assignment

The Consultant (firm) will perform detail system analysis, solution design, detail database modeling, consultation, application construction with assigned BERC & entities/utilities officials and carry out, among others the following functions:

- Perform in-depth study of the BERC Uniform System of Accounts, all reporting forms and Analyzing Requirements from the 12 gas entities/utilities such as Petrobangla, BAPEX, BGFCL, SGFL, RPGCL, GTCL, TGTDC, BGDCL, JGTDSL, KGDCL, PGCL and SGCL;
- Design, develop, supply, installation, configuration, integration, implementation, testing, commissioning and maintenance of web-based integrated Uniform System of Accounts Software for above mentioned gas sector exploration, production, supply, transmission and distribution entities/utilities followed by BERC Uniform System of Accounts. The software will be consolidated for production, supply, transmission and distribution entities/utilities of the gas sector those include Financial Accounting Management Module, Fund Management Module, Debt/Loan Management Module, Fixed Asset Management Module, Inventory Management Module, Payroll and Related HR Management Module, Project Management Module, Budget Management Module, User Access Management Module and other related task. All modules will be integrated each other. Each utility/entity will be used software and generate report separately/independently. In this regard, User Access Management Module is to be developed to configure the multi-user roles and responsibilities on real client server architecture. Software Development phases are to be completed in consultant's premises;
- Design a feasible accounts coding as per requirement of BERC Uniform System of Accounts numbering guidelines and requirements of BERC;
- Develop user registration, related all entry forms and reporting forms;
- The software developer has to develop the program code as per the design and technical specification of the Uniform System of Accounts and requirements of BERC. The program

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codes are deliverable to the procuring entity after the successful implementation and prior to final acceptance;

- Pilot Testing in two entities/utilities (BAPEX and BGDCL or two gas entities as decided by BERG) through entering live/real day-to-day data entry of a quarter (latest completed or running, as convenient, decided later by the Commission) in the above mentioned two entities Head Office premises and review & generate quarterly financial statement (balance sheet, income statement and cash flow statement and other relevant statement);
- Adopt system in all entities/utilities through entering latest completed financial year data as opening balance of all entities/utilities and generate financial statement (balance sheet, income statement and cash flow statement and other relevant statement);
- Conduct training with users;
- Develop and submit a user manual documents and handouts for the users;
- Provide maintenance and support to the nearly built system for 3 (three) years.

5 Functional Requirements

5.1 System Features

(a) Accounts Modules

To store and manage structural information and operational activities of BERG Uniform System of Accounts by means of the following manners/input options (including but not limited to these):

Module	Feature Description
Financial Accounting Management	Creation of chart of accounts as per prescribed format of BERG Uniform System of Accounts. Bank details information for bank transactional ledger. Ageing analysis for Receivables and Payables. Voucher type management. Voucher management. Facilities to provide an interface to manage voucher posting to trigger all respective transactional accounts heads and their reflection to relevant reports. Bank reconciliation.
Investment Management	To manage the fixed deposits invested in different banks.
Payroll with HR Management	Record of "Final Settlement" of employees pay & allowances, other requirements and related HR management.
Loan/Debt Management	To manage local, foreign and inter-company loans.
Fixed Asset Management	To register all the fixed assets and periodic depreciation calculation.
Inventory Management	To manage all material/inventory related activities.
Project Management	Project management and their information for keeping and getting project wise transactional activities.
Budget Management	Facilities to provide interfaces to manage basic setup information of actual budget and revised budget as per GOB Economical Code. More extended budgetary activities are illustrated in Budget Management System. Budget impute actual and revised.

Required Reports

Primary Report	Chart of Accounts as per prescribed format for BERC Uniform System of Accounts. Chart of GOB economical code convention as per budget.	
General Report	Chart of bank accounts. All types of voucher either posted or non-posted. Periodic transactional voucher list either posted or non-posted.	
	Trail Balance. Balance Sheet. Income Statement. Cash Flow Statement. Change of Equity Statement.	
	Other Relevant Reports.	
	Ledger Report	General Ledger. Subsidiary Ledger. Sub-subsidiary Ledger Accounts Category Wise Detail Report. Accounts Category Wise Summery. Accounts Type Wise Summery Report. All General Ledger, Subsidiary Ledger & Sub-subsidiary Ledger of a Subsidiary Account reports will have options to show details, specific & summary. Bank General Ledger. All Bank Balance Summery of any Type (Such as FDR, STD/SND, CD etc.) of Bank Accounts. All Accounts Balance of a Specific Bank. Bank Balance of a Specific Account under a Specific Bank. Bank Reconciliation Accounts.
	Other Reports	Comparable Income Statement. Comparable Financial Position Statement. Comparable Report between estimated Budget Expenses & actual Expenses. Comparable Report between estimated Budget Income & actual Income. Capital Budget. Comparable Budget between financial Years. Estimated Budget & Revised Budget statement. Assets Schedule. Accounts Notes. Ratio Analysis. Plant wise Production Cost. Phase wise Production Cost under a Plant. Plant wise Income Statement. Phase wise Income Statement under a Plant. Others Report as per requirements of BERC

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5.2 Integration Requirements

System Name	Purpose
Integration with existing accounting software used by GTCL and TGTDCCL.	<ul style="list-style-type: none">• GTCL and TGTDCCL have their own accounting software. An API and/or Web Service based integration will be required to fetch data from existing software to proposed system.• The Vendor must design integration methodology with proper hardware and software requirement.• The software must have import facilities. The vendor must perform in-depth analysis of existing software of GTCL and TGTDCCL and propose requirements for data integration.

5.3 System Audit Requirements

This system will maintain an audit trail of any changes or updates made in any information that is considered as vital and should maintain the audit log with information such as:

- Log the users who are accessing the system.
- Log the parts of the application that are being accessed.
- Log attempted breaches of access.
- Timestamp.
- Ensure an audit trail is kept for all transactions and all audit transactions logged are kept on the trail file or trail database from where system can generate different audit reports as and when required.
- Bidders should conduct risk assessment to define audit objective and scope after being awarded for the assignment.

5.4 Reporting Tools and Format

The reporting utility will facilitate the administrative users of the system to design a customized report. The following points will clarify the utility:

- The title, heading footer of the report can be specified by the administrative user.
- The columns of the report could be selected by dragging and dropping of the table columns.
- A visual representation of the selected tables containing the data will be available for selection of the columns.
- There must be provision for applying formula on the selected data through formula editor
- Grouping of data using SQL query must be available.
- The content of the report could be changed by specifying margins, fonts etc.
- Reporting tool should support Unicode Fonts for Local language requirement.
- Reporting tools should build on open standards to accept data from other sources.
- System should allow print preview of documents prior to printing as well as report could be sent as email.
- System should be able to schedule reports or any background programs to any date and time up to minutes.
- Reporting tools must provide flexible layout editor tool web based WYSIWYG design editor. End user should easily design report layouts directly in a web browser or using familiar desktop tools such as MS word, MS Excel or PDF.

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- Reporting tools should be used enterprise wide for all type of reporting needs such as Purchase Order, Government Forms, Operational Reports, Financial Statement, Cheque Printing, etc.

It is worth mentioning that the administrative users must have proper training and transfer of knowledge of the developed system to make the report of the utility fruitful. The vendor must ensure development of 13 (thirteen) Administrator and 02 (two) Super Administrator users through Knowledge transfer during development and warranty period.

All reporting format will be finalized by the client during the collection of Detailed Requirement /finalized the System Requirement Specification (SRS).



6 Non-Functional Requirements

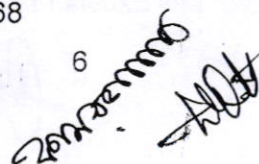
6.1 Web Application Requirement

- The application which is a web based solution, has to be hosted in a centralized Web-server at BCC.
- Application should support MVC framework.
- Considering the operating/client environment at different level of this application, it should be developed in such a way so that it requires low bandwidth to run.
- The web-based application should support cross browser platforms (popular web-browsers such Mozilla Firefox, Opera, Chrome, Internet Explorer, Safari etc.)
- Should have ability to seamless integration with future module/components/applications.
- Application should be lightweight and rich client-side scripting.
- The application should have mobile accessibility.
- Production Server will be hosted in BCC.
- Preliminary study, development, training and UAT Servers has to be hosted in the Consultant's premises.
- R&D Servers has to be hosted in the BERG premises. Vendor is requested to submit a preliminary R&D server requirement (hardware and software).
- All data should be encrypted when accessed over the web.
- The system should contain an alerting mechanism to inform administrators for various alerts within the system.
- The system must be able to report and maintain accounting records at the transection level in more than one functional currency.
- System should use workflow to electronically route documents across all modules.

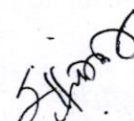
6.2 Presentation Aspects

- The Uniform System of Accounts software should be user friendly in terms of visual design, navigation, and screen layout.
- The software shall be flexible, parameter driven and construct easy to use data entry.
- The software developer has to design the desired features and operation of the Uniform System of Accounts in detail, including, screen layouts, business rules, process diagrams, Data Flow Diagram (DFD), Entity Relationship Diagram (ERD), flowcharts and other documentation.
- The web based system should work with all the latest web browsers and minimum supported screen resolution should be 1024x768

By:  Time: 

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- The software would be hosted a domain defined by BCC.
- The software should have the export and import facility of Table / Query in MS Excel/ PDF etc. format.
- The system should have adaptability facility with forth coming technology.
- User machine operating system and hardware requirement should be minimum.
- All the screens should be printer friendly, so when needed, users can take printout of the screen/ content/ document in plain simple format (without template graphics).
- Navigable bar, icons, quick links and toolbars should be in a consistent position throughout the system.
- All the list view/ data grid should have search facility.
- All the forms, reports and overall template should look professional and consistent throughout the web application.

6.3 UI/UX

The vendor must propose a UI/ UX plan containing UI designing method and tools, prototype or Mockup design (if applicable), UI review method, process for study and analyze UX, collaboration of basic web and mobile UX issues and expected result and outcome of UX, finalizing the UI/UX design. Apart from this, the vendor should consider the following issues as requirement at the time of UI/UX plan.

- The system interfaces should be highly user friendly, easy to navigate and ensure fast loading.
- The UI shall design by using well-established, supported and lightweight UI framework so that it follows widely used industry flow patterns.
- UI shall be easily configurable if any changes are needed.

6.4 Security and Privacy Requirements

The authentication and authorization of the system need to be ensure robust/highest level of security. The system prevents all standard web vulnerabilities and provides industry standard security measurements.

System access may be configured for specific users or groups of users allowing them access only to elements of the system they require to perform their job role. The history of the users will be recorded in the background of the system for audited purpose. An Audit Log is also included for providing a records of all user activities on the system. This can be reported on by user & modification type, to mention just a few. Administrator will be capable to add/edit/delete any type of user and grant / revoke any type of role/ permission. Super Administrator have 3 (three) tier approval system. With a very strong Enterprise system's regular security audit and careful implementation of various measures least but not limited to the following must be taken to prevent any kind of security breach.

a) Application Security

- The system should be completely secure & foolproof with incorporation of industry standard proven data encryption techniques and methodologies. Those encryption techniques should be audited in timely manner to detect loopholes and updated with the latest patches, in order to ensure that the mechanisms are fitted with the latest security features.
- User sessions and cookies should be uniquely re-generated and stored securely each time they logged in.

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- URL restriction should be tight. The system should recognize a logged-in user with proper rights and only present the part of the system that falls within his/her authorization scope. Furthermore, trying to access a URL by guessing should also be prohibited.
- The URLs for internal users should be relatively unique (only known to administrators and relevant personnel) and separate from the well-known portal URLs.
- Configuration and other sensitive system-level artifacts should be securely stored.
- The access control security function shall provide a facility for the system administrator to suspend an existing user's access rights for a specified period of time or indefinitely.
- Software should be designed with secure coding standards and guideline.
- The software needs to be Quality Assurance (QA) and Vulnerability assessment and Penetration Testing (VAPT) tested from the Software Quality Testing and Certification (SQTC) Center of BCC.
- The software should ensure channel encryption (SSL-Secure Sockets Layer) for the purpose of interfacing with external system.

b) User Interface Security

- No system level file/information should be accessible throughout the web browser. The system should never allow executing direct files.
- Facility can be provided to lock a user and unlock as and when required.
- No invalidated input should be accepted in any web forms – all incoming data should be validated, checked and purified before acting on that.
- In case of any system failure or error condition, no sensitive information (e.g. database credential) should be displayed on the site. All kinds of errors should be suppressed, logged, gracefully handled and should only be accessible by the administrators with proper rights.
- SQL/XML/Code injection, Session hijacking/fixation, Output Escaping, Cross-Site Request Forgery, Cross-Site Scripting, Enforced Same Origin Policy, Parameter Tampering, Directory Traversal, Denial of Service etc. should be prevented, logged, and reported.

c) Data Security

- No personally identifiable information may be exposed within and outside the system without proper authorization as privacy of the user data must be dealt with utmost priority.
- Any attempt to breach the security will be recorded with all the relevant data.
- If the system is accessed in the time not defined by the Administrator, e.g. in the case of production deployment, all options will be locked and the user will not be able to use the system.
- Reports can be retrieved for all audit logs.

d) Network Security

- The system must communicate using Transport Layer Security.
- Public-key encryption methods are used as part of SSL encryption and are expected to be part of the System.

Apart from this the vendor should keep in account the above considerations as well as vendor should provide a checklist based on system and hosting security plan & have to provide the test report of that checklist.

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6.5 Backup Requirements

Backup Plan will play a very important role by creating the systems of prevention and recovery to deal with potential threats and risks of the Uniform System of Accounts operation. Vendor is requested to propose a Backup Plan for this application. Regarding backup requirements, the Vendor may take in account the following issues if applicable or suitable for this application:

- All standard backup facilities should be supported by the system which can be started with disk based backup facility; gradually moving to Storage Area Network (SAN) based backup system.
- Data and the Operating System core component will be separated. A ghost image of the Operating System will always be available in case of rebuilding the server. All data can be restored in the data drive once, the Operating System is restored.
- System can also have an automated Backup mechanism by which users can schedule the backups and the system will take the backups without manual intervention.
- System must check for the media and generate a report on backup with date, time and details of backup.
- If a restoration fails for any reason, the system should prompt with proper error messages and suggest what has to be done to rectify the situation via on-screen, logs, email and text messages.
- System should maintain an automated recovery system and all versions of backup will be maintained. At any given point of time, the versions and incremental backup details can be retrieved from the system.
- System should be configured in clustered mood (if applicable and supported by Host).
- The Consultant (firm) should be able to setup replication of the production environment on a standby server located in Disaster Recovery site (provided by BCC).

6.6 Copyright

All kinds of sources code including code documentation and other approved documents (i.e. complete source code of ICBS, database schema, SDD, DFD, administrative manual, user manual etc.) and all kinds of deliverables developed by the firm under the scope of this TOR are the property of BERC and the firm have to handover these to BERC.

7 Detail Technical Specification

7.1 Software Platform

The web application should be developed using state-of-art technology. The architecture of the Software System must be 3 tier with clear separation of Presentation, Application and Data layer. The users should be comfortable in operating and viewing the web application with flexible user friendliness, good-looking user interfaces, and input validation anticipatory measures. The application should be highly scalable with maintaining optimization, data integrity and data security. The application should be operable using any web browsers.

Specifications of Application Development Platform, tools, technology (for front end) and Relational Database Management System (RDBMS) (for back end database) are as follows.

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SL No	Specification
1	Application Development Platform: <ul style="list-style-type: none"> • Server side Language: PHP • Client side Language: HTML5, CSS, JavaScript
2	Database <ul style="list-style-type: none"> • Software: My SQL • Structure: The database should be at least in 4NF
3	Server Operating Environment: Linux
4	Project Management: Any Standard task monitoring tool.
5	User operating environment: Any Operating System
6	Web browser: Any Web Browser.

7.2 Hosting Requirements

As per requirement of Software Platform, Hardware will be available in the National Data Center of Bangladesh Computer Council (BCC). Bangladesh Government is providing an extensive and standard hosting facility for all types of government organization applications and software that is named as National Data Center under Bangladesh computer council (BCC). It may be mentioned here that the vendor developed application will be hosted in government provided data center i.e. National data center (NDC). Therefore, at this stage, vendor is requested to submit a preliminary hosting plan for this application considering the issues mentioned below-

- Hosting requirement /environment (hardware, servers, network, security, storage, traffic, firewall, bandwidth etc.);
- Hosting architecture;
- Data Growth and Scalability plan;
- User handling/load balancing mechanism;
- Scheduled backup & Restore Requirements;
- Disaster recovery requirements;
- Monitoring tools requirements;
- Band width Requirements.

8 Organizational Capacity

8.1 Experiences, Resources and Delivery Capacity Required

The bidder must have proven track record, technical and financial resources and operational expertise to undertake this work. As such, following are defined as minimum eligibility criteria:

- Minimum 05 (five) years experiences in Software Business/ICT business as a Registered entity with Registrar of Joint Stock and Companies (RJSC) in Bangladesh;
- Must submit up to date Trade License, Income Tax and VAT certificate, Audit Report for last 5 Years and Bank Solvency Certificate;
- Must have minimum 3 Crore Credit Facility with local Schedule Bank;
- Must have 03 (three) years practical experiences of developing web-based "Accounting System" solution having featured related to this system as major or partner solution provider in any Government and reputed large private organization in Bangladesh;

- E. Vendor needs to have at least 01 (One) existing running "Accounting System" Solution within last 05 (Five) years in any Government and reputed large private organization in Bangladesh. The solution must contain modules like Financial Accounting Management, Fund Management, Payroll Management, Fixed Asset Management, Inventory Management, Project Management and Budget Management;
- F. Having experience of 02 (two) web-based/online Accounting System with minimum contract value more than 50 (Fifty) Lac Taka under a single contract within last 05 (Five) years of any Government and reputed large private organization in Bangladesh;
- G. Needs to provide Bio data of full-time professional and other personnel to be engaged in job and duly signed by the respective personnel. Availability of key professionals to carry out the assignment (mention academic qualification & length of experience) of the following professionals:-
- I. Project Manager
 - II. Business Analyst
 - III. System Analyst
 - IV. Software Architect
 - V. Database Administrator
 - VI. Accounting Specialist
 - VII. Sr. Software Engineer
 - VIII. Programmer
 - IX. Software Quality Engineer
 - X. Technical Writer
 - XI. Software Trainer
 - XII. System Administrator
 - XIII. Support Engineer
 - XIV. Implementation Engineer
 - XV. Quality Assurance Engineer
 - XVI. Data Entry Operator
 - XVII. Network Administrator
- H. Needs to have test environment ready with equipped devices at vendor's premises. Vendor's Headquarters' must be located at Dhaka;
- I. Management capacity (brochures and other documents/certificates describing similar assignment, experience, availability of appropriate professional staffs and experience among applicant's staff, resources to carry out the assignment);
- J. Logistic capability (well-equipped office space at Dhaka with necessary facilities);
- K. The firms may associate to enhance their qualification, but should mention whether the association is in the form of a "Joint Venture" or of "Sub-Bidder". All members of such an association should have real and well-defined inputs to the assignment. The maximum number of members in the association is limited to TWO. The Firm must declare one firm in this association as the "Lead Firm". Joint-venture agreement needs to have clear identification about each responsibility matrix;
- L. Consultant firm must have Quality Certificate Like CMMI/ISO, BASIS/BCS etc.;
- M. Must have CMMI L3 and ISO 9001:2015 Certified Company;
- N. ISO 27001: 2013 Certified company will be given preference;
- O. Company profile with management, business area, specialization, customer list (with name, contact address, phone number, e-mail address and the project details with completion certificate) must be submitted in supporting the qualification of the organization.

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8.2 Team Composition

The consultant will propose a development team and an operational team as deemed suited based on the project requirements and milestones. However, for proper execution of the project the consultant's proposal must include at least the following personnel:

Position	Required Resource	Education	Vendor Certification	Year of General Experience	Year of Specific Experience
Project Manager	1	B.Sc. in CSE	PMP	8	5
Business Analyst	1	B.Sc. in CSE or Applied Information Science	--	10	7
System Analyst	1	M.Sc. in CSE	--	10	7
Software Architect	1	M.Sc. in CSE	--	10	7
Database Administrator	1	B.Sc. in CSE	--	7	5
Accounting Specialist	1	M. Com in Accounting	--	10	7
Sr. Software Engineer	1	B.Sc. in CSE	--	8	6
Programmer	4	B.Sc. in CSE	--	8	6
Software Engineer Quality	2	B.Sc. in CSE	--	6	4
Technical Writer	1	B.Sc. in CSE	--	6	4
Software Trainer	4	B.Sc. in CSE	--	6	4
System Administrator	1	B.Sc. in CSE	Red Hat Certified Engineer	4	3
Support Engineer	2	B.Sc. in CSE	--	4	3
Implementation Engineer	4	B.Sc. in CSE	--	4	3
Quality Assurance Engineer	1	B.Sc. in CSE	-	3	3
Data Entry operator	4	B Com	-	3	3
Network Administrator	1	B.Sc. in CSE	CCNA/CCNP certified will be preferable	3	3

9 Design, Development & Implementation Requirements

9.1 System Requirement Analysis

Requirements finalization will be a very important milestone of vendor's proposed development methodology. It is expected that, the selected vendor will carry out detailed requirement study and analysis on the each and every scope of Uniform System of Accounts software that mentioned in the TOR. Under this scope of work, the selected vendor has to analyze the detail functions, processes, documents, actors, sites and infrastructure of the relevant prevailing system precisely of

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the concerned organization. At this phase, vendor's ultimate objective will be finalized of the Uniform System of Accounts software requirements in details under the scope of TOR and approval of the concern organizational authority. Here vendor is requested to propose and submit a system requirement analysis plan which should cover the scope of work at this phase, relevant activities to be performed, timeline, deliverables to be produced, dependencies and resources to be used.

9.2 System Design

Basically at this phase the detail functional scope defining and designing as per the standard of software engineering approach for the proposed Uniform System of Accounts software system tasks are being performed. This is very vital and important phase of any SDLC. Considering the ultimate development and implementation scope, the proposed system design should be robust, scalable, user friendly and interoperable enough.

At this system designing phase vendor may perform different following designing related task and will produce various standard System Designing Documents (SDD)

- Identifying module, components, tasks, I/O and functional features.
- Specifying technical and functional requirements.
- User Interface design.
- Description of UI and requirements.
- Preparing the use cases.
- Defining Integration and interoperability scope.
- Designing system architecture.
- Determine process and data flow.
- Database design.
- API and/or Web Service Design.
- Data integration design
- Finalizing tools, technologies and frameworks to be used etc.

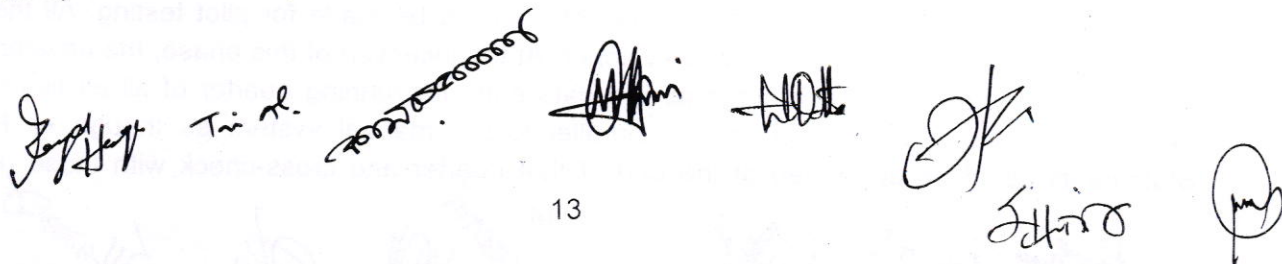
Here vendor is requested to cover details system designing plan in their technical proposal which may include relevant activities, approaches, methods, documentations and deliverables.

9.3 Development & Implementation Methodology

The consultant must provide the complete system development and implement methodology including complete project implementation methodology. The proposed methodology should be justified for this project.

Task Period:

The total task should be completed within six months, which will be effective from contract signing date. Interested firm should have to clearly mention the description of the details technical issues in its offer letter. Contract could be cancelled if any of the above condition not fulfill in the agreed time frame given by BERC. Proposed development related tasks timeline (parallel activity expected) will be shown by the Consultant (firm) as per following format:

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Task	Description	Approximate duration
Inception	Make in-depth study of the BERC Uniform System of Accounts (Gas), Detailed Requirements Collection /Analysis and updated project plan	4 weeks
Task 1	Detailed System Analysis and Design	6 weeks
Task 2	User Registration and Access Control	2 weeks
Task 3	Report Design and development.	6 weeks
Task 4	Data Entry and Pilot Testing in 2 Utilities and Review	4 weeks
Task 5	Final Deployment	2 weeks
Task 6	Training (Uniform System of Accounts Manual and Software Operation)	3 weeks
Task 7	Source Code handover, Software handover with user manual development	1 weeks

9.4 Testing

The vendor must propose a testing plan for this Uniform System of Accounts software application starting from development to deployment. This testing plan should cover all the standard suitable testing approaches for this Uniform System of Accounts software application which may include phase wise testing activities like test scripting, test cases, testing tools, testing process, test log, result and report formats i.e. expected test deliverables based on the application development requirements. The vendor should submit testing plan, which may include standard test approaches. Some are mentioned below as examples for reference:

- Unit testing;
- Functional testing;
- Installation testing;
- Compatibility testing;
- Smoke (Day 0 Check at Built level) and sanity testing (Release Level);
- Regression testing;
- Acceptance testing;
- Alpha testing;
- Beta testing;
- Functional vs non-functional testing;
- Concurrent user load testing for performance.

9.5 Deployment and Implementation

This is the phase of SDLC, when the consent is being given to "GO LIVE" of the developed system after completed all kinds of development, integration, testing and hosting. This is very crucial and sensitive stage for a Government application because at this stage the system becomes public and expose to access towards all levels of users. The Pilot or full-scale implementation period starts formally in this stage only. Vendor is requested to propose their Deployment and Implementation plan covering the major activities to be performed, the deliverables to be provided etc.

The software developer has to implement the Uniform System of Accounts successfully on the site; therefore, some historical and existing data entry should be made for pilot testing. All the testing data have to prepare by the Software Developer. At the inception of this phase, the development of software should reach in such stage as live data entry for running quarter of all utilities could be performed in the developed system in parallel to the manual system as though all Financial Statements could be generated at the end of that quarter and cross-check with those produced

through manual system to observe whether the developed system generated reports produce the same result as are in the manual system. The functionality of the developed system would be certified through the result of the accomplishment.

Software Deployment Plan Guidelines:

Steps	Description	Approximate duration
Step 1	Pilot Phase: The deployment stage shall begin with piloting the uniform system of accounts software in BAPEX and BGDCL Head Office	4 weeks
Step 2	Review Phase: Review the result of Piloting and in parallel improve the software as needed to make it more user friendly and applicable to the situation	Within Piloting phase
Step 3	Implementation Phase: Start parallel implementation with the current manual process. Last completed year closing data for all 12 utilities should be entered in the software in this phase by the bidder.	Within Piloting phase
Step 4	Final Deployment Phase: Final deployment of software for accounting function for all 12 utilities.	2 weeks
Step 5	Capacity Development Phase: Training to accounts and IT personnel/individual user of all entities/utilities. The training must include practice and specific deskwork Support.	3 weeks (1 Week in Final Deployment Phase)
Step 6	Manual Development and Handover Phase: Source Code handover, Software handover with user manual development.	1 week
Step 7	Maintenance and Support Service Phase: 3 year free maintenance and support service.	3 years

10 Training and Knowledge Transfer

At least 6 (six) personnel for each utility along with 5 (five) BERC officials to be trained on BERC Uniform System of Accounts manual, operation, maintain, backup, restore and administration of the system for each utilities. Training would be two stages such as for Administrator Users (Administrator and Super Administrator) and Core Users/End Users. Administrator /Super Administrator (System Level) users (approximate 15 people) are the administrative users who are the IT personnel of the utilities/BERC to give technical support to each utility. The Consultant (firm) should provide necessary training documentation and facilities such as accommodation, computers, projector, printers etc. during training period. Duration of training in this phase will be minimum 5 (five) full working days for both states. Any allowances born by concern entity/utility as per government rules, all other expenses such as training material, training venue, using of computer laboratory, meals of training period etc will be born by vendor.

The vendor must propose a detail training plan for the users of the application. The vendor has to develop and provide Training to the Trainer (TOT), that TOT can provide training to Users. The vendor should include necessary training methodology, documentation and training materials support in their training plan. The training materials may include user manual, administration manual, quick start tutorial, online help, and frequently asked questions. The training plan must describe the sequencing, time, duration and resources involved in implementation of each of the consultant's proposed training activities. The training plan should contain full course descriptions for all courses that to be carried out for respective users.

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11 Maintenance and Support Service

The selected Vendor has to provide a period of 3 (three) years maintenance and support service. Ending after the development and deployment phases, the vendor has to provide maintenance and support service for the next 3 (three) years. Here it is expected that the vendor must provide detail maintenance and support service plan in the technical proposal, which may include the followings-

- Support service types and mode of services;
- Helpdesk functionalities;
- Configuration management;
- Release management;
- Incident management;
- Problem management;
- SLA (Service Level Agreement);
- Maintenance and support service related reporting;
- Service Log Management;
- During the maintenance and support service period. the vendor will be responsible for the repairing bugs/modification/development/change the software free of Cost as per requirement and any changes in the software need to be QA and VAPT tested from the Software Quality Testing and Certification (SQTC) Center of BCC;
- The vendor will have to undertake immediate action and correct any software issue through remote access within shortest possible time;
- Server Management and Software Management should be done by the vendor (with help of respective Server Admin of BERG) free of Cost within maintenance and support service period;
- Any update/modification/Change should be done free of cost within maintenance and support service period; and
- The vendor should provide 24/7 support during maintenance and support period and designate at least 02 (two) competent personnel for providing services. The vendor must propose a detailed maintenance and support service plan with the application.

At the end of 3 (three) years it may evaluate the scope of support requirement and may request a new contract for Support and Maintenance from the vendor.

12 Expected Deliverables

Considering the scope of service and scope of work of this project and based on the proposed project development & implementation methodology, the vendor has to submit here a complete list of all types of deliverables that will be produced throughout the entire project timeline whether those are materials, services, applications, source codes, documents, plans, reports etc. in a table format mentioning the stages, activities and timelines.

Some examples of the deliverables are mentioned here under for your reference.

- Project inception and management report.
- System requirement specification (SRS)/Detailed Requirements
- Blue print and Fit Gap Analysis.
- System Delivery, Installation and Acceptable Plan.
- Complete source code with installation guideline.
- Detail source code documentation.
- Test plan with test scripts and testing reports.

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- Technical documentation (System design document (SDD), RDBMS design, system architecture, module integration points, workflow engine, data dictionary, user manual etc.).
- Training/Knowledge Transfer plan and reports.
- Training material and user manuals.
- Integration plan and reports.
- Audit log.
- Web application.
- UAT Report.
- Maintenance Agreement & SLA.
- Maintenance and support log.
- Hosting requirement specification, plan and report.
- Pre-commissioning and Operational Acceptance Plan.
- Implementation plan and report.
- HR activity plan and report.
- Progress and review reports.
- Warranty Service Plan.
- Technical Support Plan.
- Resource Engagement list and plan.
- Module-wise go live plan.
- Testing and Quality Assurance plan.
- Detail Communication/Networking Plan.
- Data migration plan.
- Configuration Management Plan.
- Risk Management Plan.
- Piloting/Test Plan.
- Requirement Traceability Matrix (RTM).
- Test Case.

13 Facilitation and Reporting

On engagement Consultant will report to BERC and BERC will be responsible to oversee and payments. The Consultant will work in close association with the BERC and gas utilities. In this process all utilities will be involved and BERC official will oversee this adaption. BERC will coordinate with utilities and Consultants and designate an officer to coordinate the work. Two designated personnel of each utility (one from accounting background and another from IT background) will interact with the consultants, provide relevant data, arrange discussions and assist as required. BERC will ensure access to the available pertinent information to the assignment.

14 Responsibility of the Consultant (firm)

Once the task of developing the Uniform System of Accounts software is awarded, at least one person from the consultant (firm) will need to act as a focal point for the team. This person will be responsible for maintaining all kinds of communication with the client on behalf of the organization.

The responsibility of collecting information from client, compiling those accordingly and getting approval from the BERC will lie the consultant (firm).

Prior to finalization, preferably between 1 to 2 weeks after the task are undertaken, the consultant (firm) is expected to present requirements understanding document and updated project plan document to the client for approval. After getting approval the bidder has to start develop, supply,

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installation, configuration & commissioning of web based Uniform System of Accounts software system.

All interested firms shall submit details as per the requirements mentioned above. BERC will only be able to consider details submitted by the party in the evaluation of the proposals and will not take responsibility of lower scores that may be received due to non-submission of details requested.

15 Conclusion

Digital Bangladesh being the target, the governments as well as private organizations are on run to get Uniform System of Accounts software in place. Automation will surely bring dynamism and efficiency in the government organization and click case of doing business leading better public services and development.

Digitized system would facilitate better monitoring by enabling the government to take fast and timely actions. The technical proposal should address the issues described in relevant sections properly and contain the solution. A technically sound solution and suitable architecture are very important to the procuring entity. The Vendor is to come up with all the solutions.

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