

# Terms of Reference

(ToR)

## Development and implementation of Integrated Service Delivery Software Platform for Bangladesh Energy Regulatory Commission

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**“The Whole-Of the-Organization Approach”**

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Bangladesh Energy Regulatory Commission  
Dhaka, Bangladesh

## About BERC

The Bangladesh Energy Regulatory Commission was established on March 13, 2003 through a legislative Act of the Government of Bangladesh. The commission has the mandate to regulate Electricity, Gas and Petroleum products for the whole of Bangladesh

The Commission exercises its functions independently, in full accordance with the provisions of the Act. The primary objective of BERC is to create a regulatory environment conducive to public and private sector investment in the generation, transmission, and distribution of electricity, as well as in the transportation, distribution, and marketing of gas and petroleum products. It is further mandated to ensure transparency in operational practices and tariff determination processes within the energy sector, to safeguard consumer interests, and to foster the development of a competitive energy market in Bangladesh.

## Functions of BERC

- (a) to determine efficiency and standard of the machinery and appliances of the institutions using energy and to ensure through energy audit the verification, monitoring, analysis of the energy and the economy use and enhancement of the efficiency of the use of energy;
- (b) to ensure efficient use, quality services, determine tariff and safety enhancement of electricity generation and transmission, marketing, supply, storage and distribution of energy;
- (c) to issue, cancel, amend and determine conditions of licenses, exemption of licenses and to determine the conditions to be followed by such exempted persons;
- (d) to approve schemes on the basis of overall program of the licensee and to take decision in this regard taking into consideration the load forecast and financial status;
- (e) to collect, review, maintain and publish statistics of energy;
- (f) to frame codes and standards and make enforcement of those compulsory with a view to ensuring quality of service;
- (g) to develop uniform methods of accounting for all licensees;
- (h) to encourage to create a congenial atmosphere to promote competition amongst the licensees;
- (i) to extend co-operation and advice to the Government, if necessary, regarding electricity generation, transmission, marketing, supply distribution and storage of energy;
- (j) to resolve disputes between the licensees, and between licensees and consumers, and refer those to arbitration if considered necessary;
- (k) to ensure appropriate remedy for consumer disputes, dishonest business practices or monopoly;
- (l) to ensure control of environmental standard of energy under existing laws; and
- (m) to perform any incidental functions if considered appropriate by the Commission for the fulfillment of the objectives of this Act for electricity generation and energy transmission, marketing, supply, storage, efficient use, quality of services, tariff fixation and safety improvement.

## Objective of the assignment

In line with its mandate to ensure effective regulation, improve service delivery, and enhance transparency in energy sector of Bangladesh, this aims at whole-of the-Organization digital

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transformation of its core operational and regulatory functions building an integrated e-governance platform that will ensure improved operational efficiency and smart service delivery to its stakeholders reducing time and cost. This Terms of Reference (ToR) is a higher level scope document intended to guide the selection of a qualified Software Development Firm (the "Consultant") to design, develop, integrate, test, deploy, and support integrated software platform for BERC. Through this digital initiative, BERC aims to modernize its regulatory operations, improve decision-making, and provide efficient, transparent, and citizen-centric services across Bangladesh's energy landscape.

## **Expected Benefits**

### **Internal benefits of the Commission**

- **Smart and rapid Regulatory ecosystem:** The integrated digital platform will optimize BERC's operations reducing manual paperwork and repetitive process flow, Greater integration of processes (e.g. licensing, tariff review, compliance tracking) will create smarter internal governance having rapid regulatory efficiency. This will also facilitate automated paperless verification of cross-cutting documents being integrated with other government agencies which will create better, faster, smarter and authentic decision making and service delivery ecosystem.
- **Data-Driven Decision Making:** The integrated centralized digital platform will facilitate data driven ecosystem provisioning real-time data for the commission. Decisions on licenses, tariffs, complaints, etc will be more authentic, faster and reliable.
- **Greater Transparency and Accountability:** This transformation will enhance BERC's operational transparency and informed practices making more regulatory information accessible to stakeholders online. Furthermore, future integration of digital signature can ensure authenticity, integrity and nonrepudiation as a reference in ICT Act 2006.
- **Streamlined Compliance Monitoring:** The system will include modules to monitor licensee compliance (such as timely report submissions, adherence to license conditions, and performance metrics) in an automated manner. This facilitates continuous oversight – flagging non-compliance or anomalies in real time – and supports quicker enforcement actions when needed. By leveraging digital tracking, BERC can ensure that licensed entities operate within set standards, effectively mitigating risks and safeguarding the public interest.
- **Enhanced reliability on tariff system:** By creating data driven informed system, such digitization will form enhanced authentic mechanism to determine and adjust tariffs in energy sector. Unified Data Modeling in energy data will help the commission decide more reliable and justified tariffs.

### **Benefits for the licensees**

- **Smart and easy way of Licensing:** Digital System will reduce time and cost for having licenses. Applicants will be able to easily submit new license applications, license renewals, amendments, and cancellation electronically. The system will guide users through standardized forms with built-in validation (reducing errors), and allow uploading required documents digitally. This convenience lowers the effort needed to comply with



regulatory requirements, replacing lengthy in-person or paper-based submissions with a streamlined digital process.

- **Clear Regulatory Expectations:** This platform can be configured to convey clear guidelines and checklists for each type of application or compliance filing. From the outset, licensees will know exactly what data and documents are required, as the online forms and templates mirror BERC's regulations. This clarity reduces back-and-forth communication and ensures that submissions meet BERC's criteria on the first attempt. Having all relevant laws, regulations, and standards accessible on the portal further helps companies understand their obligations, creating a more transparent regulator-industry relationship.
- **Improved Communication System:** Through the system's secure portal, licensees will receive instant notifications on the status of their applications, queries raised by BERC, or upcoming regulatory deadlines. Rather than relying on physical visits

### **Benefits for the Consumers and the Citizen**

- **Easy access to information:** The integrated system will make BERC's relevant services and information available anytime anywhere for the consumers and general citizen facilitating online access portal. This open access to regulatory information allows the citizen to understand how energy prices and policies are determined, in line with BERC's mandate to promote transparency. It also means stakeholders (including consumer advocacy groups and the media) can easily obtain data that was previously hard to access, improving public oversight of the energy sector.
- **Faster Dispute Resolution:** Consumers and Citizen will be experiencing quick and smarter dispute resolution by the commission by such digital intervention in Grievance Redressal System. Citizen/Consumer can submit/track disputes/complains which will eventually increase public trust on the commission.
- **Protection of Consumer Rights:** By strengthening BERC's regulatory oversight, the project indirectly safeguards the rights and interests of consumers. The commission's founding goals include protecting consumer interests and ensuring quality in the energy sector, and the digital system will be a tool to fulfill that mandate more effectively.

### **Benefits for the Government**

- **Inclusive Governance:** Developing the digital platform will create inter-agency real-time connectivity within the government and consumers for energy regulation that will result in an inclusive good governance. This digital strengthening of BERC contributes to overall good governance in Bangladesh – demonstrating the government's commitment to accountable and technologically enabled public institutions. A well-functioning, autonomous regulator equipped with modern tools also ensures that sector decisions (like tariff setting and licensing) are made systematically and fairly, reinforcing the rule of law in the energy sector.
- **Increased Investor Confidence:** A transparent and predictable regulatory environment fostered by this digital intervention will make Bangladesh's energy sector more reliable to investors. Clear and transparent regulatory information and services will attract investors in terms of service efficiency, investment security and business case development in energy sector in Bangladesh.
- **Improved Policy Planning in energy sector:** With all regulatory data managed in an integrated platform, the government will have access to a rich repository of energy sector

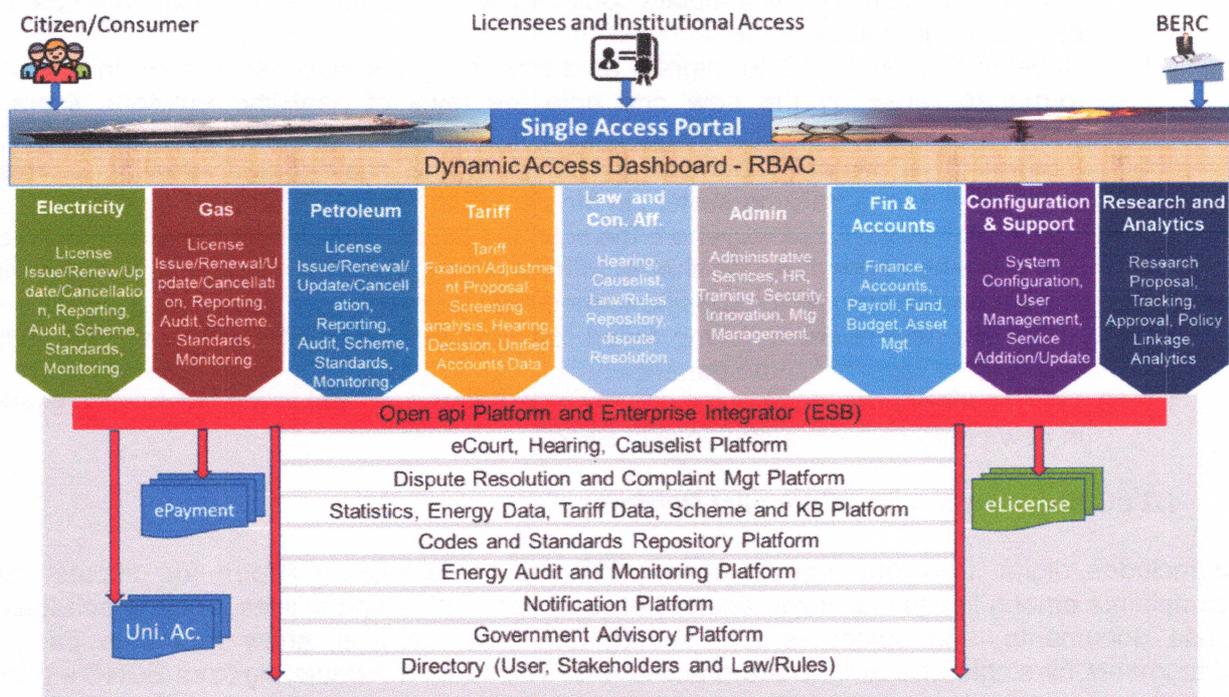


information. This includes consumption and generation data, investment data from licensing, and reliability metrics from compliance reports. Such high-quality data can feed into national energy planning models and policy decisions. Planners and policymakers (e.g. Energy Division, Finance Division etc) will be better informed on sector trends and can design informed interventions.

## Scope of Services

Major Scopes of this assignment will be as follows:

1. Multi-module and micro-service based software system development: The HLD of multi-module based digital platform will look like (not limited to):



The above diagram denotes the proposed system's overall idea. There will have 8 horizontal shared platforms to be developed. In addition to those horizontal shared platforms, eLicensing Software platform will also be developed as an integral part of the total system. ePayment System, and Unified Accountings mentioned here will be just integrated. The 8 horizontal platforms will be accessed and shared with the vertical 9 modules. Overall functional requirements of these horizontal platforms and vertical modules are given below:

### 1.1 eLicense System:

- 1.1.1 Going through the existing eLicensing system in BERC and identification of its reusable components along with data sets and UX models.
- 1.1.2 Design and Develop User Interfaces and technology mechanism for application submission and update. Applicants/Licensee's dashboard, profiling licensee's information, and tracking application status.
- 1.1.3 Creating internal workflow and dashboard for BERC's officials for application screening, decisions management, filing and issuing/updating/renewal/cancellation

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Licenses for Electricity (Generation/Transmission/Distribution), NG/NGL/LNG/LPG/CNG/Synthetic Gas Transmission/Distribution/Marketing, Petroleum (Transmission/Distribution/Marketing).

- 1.1.4 Facility for uploading scanned documents as evidences/proof (Trade License, Incorporation Certificate, VAT Certificate, TIN Certificate, TAX Return, Clearance from Fire Service authority, NOC from Environment Ministry, NOC from Department of Explosive etc) as well as future provision for integrating external systems to verify those documents (subject to the facility available online in the relevant ministry/department). Online verification of digitally issued licenses will be available in the system.
- 1.1.5 Facility of notification to the applicant/licensees as part of communication through email and/or SMS.
- 1.1.6 Provision for Integrating eSign/Digital Signature and issuing QR code (PKI Enabled) embedded Licenses in a template configurable time to time and domain to domain as per the requirements of the commission.
- 1.1.7 Develop ETL and DTS to migrate data from previous eLicense system in a usable format to reuse by the new one upto the level of usability. Previous scanned documents will also be archived in re-usable manner by this system.
- 1.1.8 Integrating ePayment Gateway and MFS in the system and creating payment reconciliation and tracking system in the dashboard for BERC officials.
- 1.1.9 There will have a file server where the scanned documents will be stored and archived.
- 1.1.10 This eLicense system will be shared with Electricity, Gas, Petroleum modules (sharing is configurable) for sector specific license management.
- 1.1.11 There will have a cross cutting report template building facility in the system sothat customized reports can be generated.
- 1.1.12 Vendor will ensure reuse of maximum components and usable data of existing system in new platform in consultation with BERC.

## 1.2 eCourt, Hearing and Causelist Platform

It includes digital transformation in case-tracking and resolution platform for disputes and complaints among licensees/citizen and/or between consumers and utilities, hearing schedules, case documents, and outcomes with secure role-based access, show reference page or documents by single checking to the practitioners. This unified module digitizes BERC's quasi-judicial and arbitration proceedings, enabling end-to-end case lifecycle management through structured digital workflows, transparency, and secure information handling. Major requirements are given below-

- 1.2.1 System will have Case Registration & Tracking system. Consumers or Utility Providers or citizen or other BERC Licensees can register case for dispute resolution or as a complaint in the system and the system will generate unique case/complaint number classified with nature of disputes or complaints and assigned user can forward that to respective department (Consumer Affairs or Law). Necessary profile information will be recorded in the system and this eCourt platform will have necessary tracking system by dashboard.
- 1.2.2 System will have online causelist management where the petitioner can find the hearing schedule and orders. SMS/Email notification will also be served through Notification Platform.
- 1.2.3 System will have the facility to handle Documents and Evidences related to the case Management and complaints. Related legal references will have to be handled using directory modules. Hearing, Order & Outcome Management will be there. Drafting,



internal review, and issuance of Commission orders and arbitration outcomes. Publishing decisions with compliance tracking and archival is also needed.

- 1.2.4 Workflow will be used in case related internal decision management. Case Management Monitoring Dashboard information will be there. Enabling monitoring of case progress, deadlines, and milestones is also needed. Selected vendor will not develop any online meeting system, user may use globally recognized online meeting platform (e.g. Zoom, Teams, Meet etc) and BERC's platform will have the provision to record hearing scripts in an easy and short manner. Preserving any audio clip is needed also on-demand, if necessary.
- 1.2.5 System needs to have integration with ePayment gateway/MFS to receive payments from petitioners wherever this is applicable.

**1.3 Dispute Resolution Platform (DRS):** This platform will supplement activities of eCourt, Hearing and Dispute Resolution system. Major requirements include –

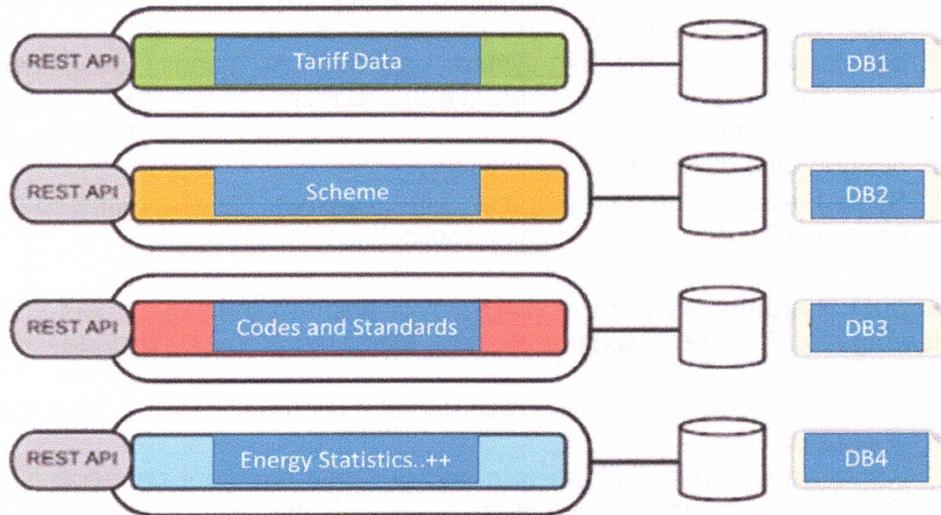
- 1.3.1 System need to have online dispute submission system by consumers, citizens and licensees.
- 1.3.2 An internal workflow along with decision management connecting eCourt, Hearing, Causelist will be there. In addition to that, D-Nothi internal workflow will also integrated.
- 1.3.3 It requires tracking dashboard depicting status of each dispute/complains/hearing along with desks/Officers disposal information. Submission and decision management will have necessary connection to legal reference from Directory platform, facility to upload any required scanned document or evidence.
- 1.3.4 Law and Consumer Affairs will be the primary access door for this platform, where all types of complaints and disputes will come from externals stakeholders e.g. Consumers, Citizens, Licensees and Utility providers. System will have configuration to classify types of disputes/conflicts/complaints and classified application will be forwarded by BERC assigned officials to respective sections/officials for further processing. Necessary internal workflow and internal decision management, noting, filing, noticing etc. will be organized by the platform.
- 1.3.5 Necessary reports related to this module presenting statistics, trends, status and other indicator based information/infographics/graphs are to be available from the system.

**1.4 Statistics. Energy Data, Tariff Data, Scheme and KB:**

- 1.4.1 Collects, validates, and publishes national and regional energy data through dashboards and exportable formats.
- 1.4.2 Allows data collection and analysis on supply chain performance; Generation, Transmission, Distribution of energy, storage, safety, rate structures, tariff history, tariff adjustment/determination data.
- 1.4.3 BERC has its separate Unified Accounting System where external stakeholders provide their accounting data in a pre-defined format and this platform will have integration with that accounting system for data analysis by BERC.
- 1.4.4 This platform will have facility to export data in Spreadsheet/CSV format. This also requires data import facility from Spreadsheet/CSV format.
- 1.4.5 Need to have necessary facility for submission and approval of schemes by the Licensees, with tools for load forecasting and financial scenario modeling.
- 1.4.6 Visualizations of energy generation, consumption, capacity, etc.



1.4.7 Need to have the provision for generating official statistical bulletins, data reports, datasets, and yearbooks.



**1.5 Codes and Standards Repository:** This platform will contain sector specific data for creating standards benchmark for Electricity, Gas and Petroleum. Such compliance related data of code and standards will relate the following area-

- Environmental
- Transmission
- Generation
- Equipment
- Distribution Standards
- Grid
- Security
- Legal
- Energy Efficiency

1.5.1 The above sectoral code and standards will be entered in this platform using interfaces and this will form a sectoral benchmark of standard which will eventually accessed by other service modules for audit, monitoring or inspection purpose. Necessary data sanitization tools, update system, inspection checklist and archiving system will also be there.

1.5.2 This platform will enable reporting system on sector specific standards for any licensees of BERC digitally.

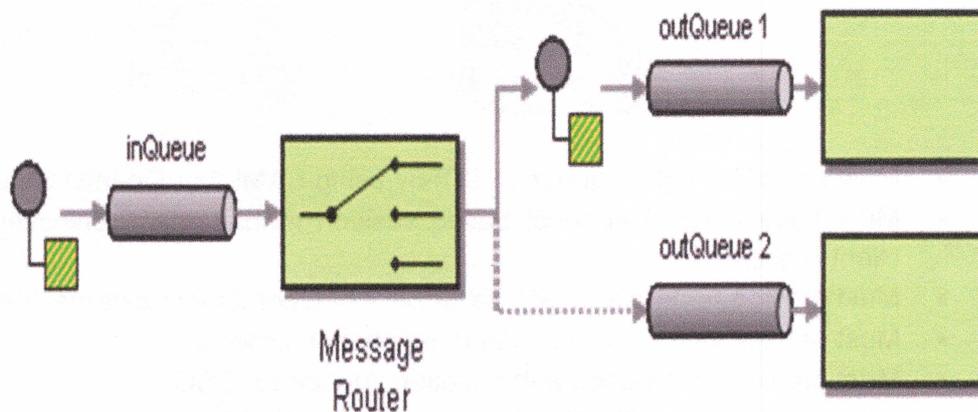
**1.6 Energy Audit and Monitoring Platform:** This platform will facilitate necessary interactive features for conducting Energy Audit and monitoring Licensees relevant operations as per rules. Major requirements will be –

- 1.6.1 Development of UIs for Audit checklists and data management
- 1.6.2 Interconnection with Data Platform for codes, standards and history
- 1.6.3 Facility to handle audit charter, audit activities and reports.
- 1.6.4 Monitoring Dashboard system as part of assurance services.

**1.7 Notification Platform:** This platform will handle SMS Gateway and Email Gateway for all types of notification services associated with any of the modules or services in the full

system. Notification system will include mobile popup in case of messaging through mobile app of this platform. Following are the major events (not limited to) for notification service:

- Submission of any application/dispute/complaints by Licensees/citizen/applicant/Utility Providers
- Requirement of informing any Licensees/citizen/applicant/Utility Providers about partial/incomplete submission of documents/information.
- Periodic follow-up with any Licensees/citizen/applicant/Utility Providers regarding any pending issues (missing any document, incomplete information, payment, expiration etc) that are to be addressed by them.
- Approval of any license issuance/amendment/cancellation.
- Custom notice by BERC official to any relevant party.
- Creation of user account, resetting passwords or changing user profile.
- Hearing Schedule



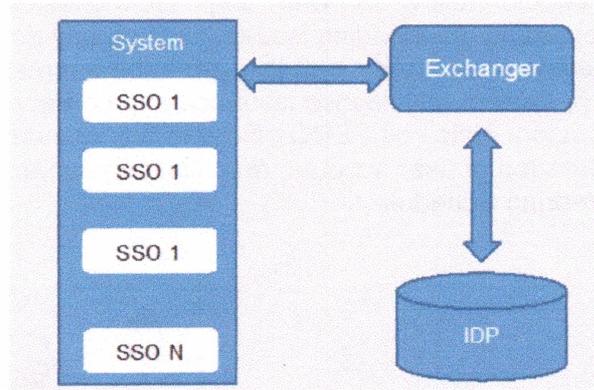
**1.8 Government Advisory Platform:** Necessary interactive UI, management and tracking will be developed for advisory interaction with the Government. Such advisory will include Generation, Transmission, Distribution, Marketing, Promotional and Legal areas. System needs to have advisory type, sub-type and category information, advisory narration and history preservation and retrieval mechanism. Necessary reports from this advisory system will be needed also.

**1.9 Directory (User, Stakeholders, Law/Rules):** This Directory Platform will handle profiles of users/stakeholders and registry of necessary rules/laws. Major requirements are as follows:

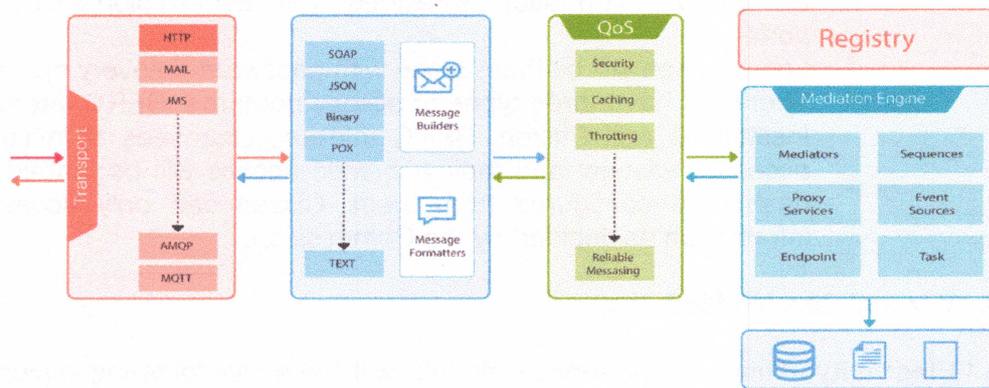
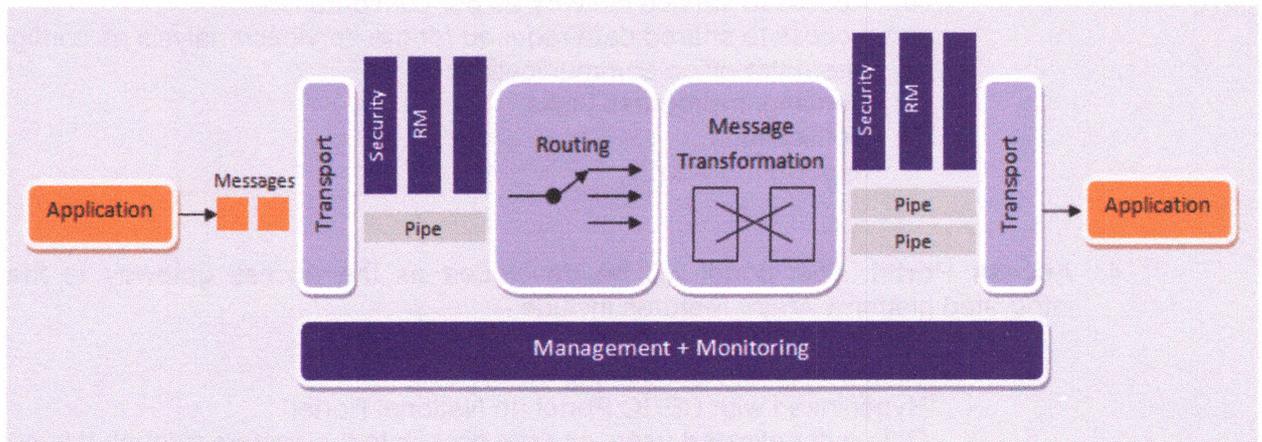
1.9.1 Internal and External User Profiles, Access Control, Role management, passwords and credentials management will be developed in this platform. One user will have only one USER ID with Password that will follow configurable multi-factor authentication. Password retrieval/reset option and password authentication by email and/or mobile phone will be needed. Total system will follow SSO methodology in access management. Necessary session control and account blocking because of an additional incorrect access retry will also be there.

1.9.2 Licensees and other external stakeholders (e.g. Vendors, Suppliers) will also be entitled for creating profile in this platform to get access for BERC services.

- 1.9.3 This platform will also create a searchable registry of Law and Rules related to BERC operation as decided by the Commission time to time. Necessary provisions for adding rules/laws will have to be developed along with update facility.



- Must provide Single Sign-On (SSO) by using SAML2 or OpenID Connect
  - Must have OpenID connect based session management, discover and dynamic client registration
  - Must provide Federated SSO via SAML2 or OpenID with external identity providers
  - Must provide white label login and registration process
  - Must provide Rule-based authorization support for SSO
  - Must support for multi-option/multi-step authentication
  - 2-factor authentication (2-FA) (hardware based or soft OTP)
  - Time-based one-time password (TOTP) based authentication
  - Must provide Users and Group Management
2. **Enterprise Service Bus (ESB) and api Integrator:** This ESB to be developed as a middleware that will simplify inter-modules (or applications) integration in the whole system and also to integrate with external systems (e.g. D-Nothi, iBas++, Government GRS etc) enhancing agility by providing a centralized platform for exchange, transformation, and routing across the systems.



Main featured expected in this ESB and in integration strategy:

- Messaging and Communication: Enables different applications/modules to communicate asynchronously or synchronously.
- Integration: Connects systems, applications, and services regardless of their underlying technologies or protocols.
- Routing: Directs messages to the appropriate services based on predefined rules or content.
- Transformation: Converts message formats and data structures to ensure compatibility between systems.
- Protocol Support: Supports multiple protocols like HTTP, SOAP, REST, JMS, etc.
- Security: Provides authentication, authorization, and encryption features.
- Orchestration: Coordinates complex business processes involving multiple Services.

3. **Dynamic Access Dashboard:** Role Based Access Controlled dynamic dashboard will be developed where BERC Users will get access for the information he/she is granted. Such access control will be done from Configuration module of this system. This dashboard will have following major features (Not limited to)-
  - a. Infographic presentation of the services
  - b. Progress Tracking of the activities

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- c. Profile Management
- d. Access to service delivery as per configuration
- e. Access to shared data required for the services/analysis as configured
- f. Inter/Intra office communication
- g. Pending/In-progress tasks
- h. Notifications
- i. Important "to-do"

4. **Access Portal:** This portal will be developed as the access gateway to the whole integrated platform. Major features include –

- Mobile Responsive
- Less Bandwidth Consuming stylesheet
- Hyperlinked with BERC Portal (In National Portal)
- Only authenticated users can get access to the system through this portal
- Some public information as decided by the commission will be displayed in this portal
- Login screen will be there along with password recovery option.
- There will have three types of access corners – BERC Internal, Licensees & Institutions and Citizen. BERC Internal, Licensees & Institutions will have access credential and their authentic access will be landed in the dynamic dashboard configured from them. Citizen can only access to rules and information as decided by the Commission.

## 5. Vertical Service Modules

5.1 **Electricity:** This vertical service module will have the following major services to be accessed by the authorized user. Services can be added or updated in business logic layer as per the requirements of the Commission.

- 5.1.1 Electricity Generation/Transmission/Distribution License issue/Cancellation/Renewal/Amendment: Using the Horizontal License Platform, this services can be processed by BERC. Applicant and BERC officials will get access this service area as described in eLicense Platform specification above.
- 5.1.2 Electricity License Waiver Certificate Issue/Renewal/Cancellation: Using the Horizontal License Platform, this services can be processed by BERC. Applicant and BERC officials will get access this service area as described in eLicense Platform specification above.
- 5.1.3 Codes and Standards development and assurance: Electricity related codes and standards can be accessed from this service by BERC officials. This service will just connect Code Standard Horizontal Platform as described above. Necessary reports will be designed as well.
- 5.1.4 Advisory Services to the Government: Necessary UIs and reports will be developed and this service processing will connect Horizontal Government Advisory Service Platform as described above.
- 5.1.5 Energy Audit framework: This part will connect Horizontal Energy Audit Platform as described above and necessary reports and UIs will be developed. During inspection, officials of BERC will have the facility to upload any real-time document in the system from field. Inspection System will have inspection checklist. Inspection team formation information will be upload as data by UI. At the time of writing inspection report, respective inspection related documents will be embedded with the report, assigned

officer can refer inspection document online and there will have auto-text option in the report writing editor derived from the referred information by the officer. Inspection reports will be mapped with the inspection team.

- 5.1.6 **Scheme Management:** Licensees can submit application for power schemes and this service will connect Scheme Horizontal Platform in the system for approval related workflow/decision processing with tools for load forecasting and financial scenario modeling.

**5.2 Gas:** This vertical service module will have the following major services to be accessed by the authorized user. Services can be added or updated in business logic layer as per the requirements of the Commission.

- 5.2.1 **NG/NGL/LNG/LPG/CNG/Synthetic Gas Transmission/Distribution/Marketing:** Using the Horizontal License Platform, this services can be processed by BERC. Applicant and BERC officials will get access this service area as described in eLicense Platform specification above.

- 5.2.2 **Codes and Standards development and assurance:** Gas related codes and standards can be accessed from this service by BERC officials. This service will just connect Code Standard Horizontal Platform as described above. Necessary reports will be designed as well.

- 5.2.3 **Advisory Services to the Government:** Necessary UIs and reports will be developed related to Gas sector and this service processing will connect Horizontal Government Advisory Service Platform as described above.

- 5.2.4 **Energy Audit framework:** This part will connect Horizontal Energy Audit Platform as describe above and necessary reports and UIs will be developed. During inspection, officials of BERC will have the facility to upload any real-time document in the system. Inspection System will have inspection checklist. Inspection team formation information will be upload as data by UI. At the time of writing inspection report, respective inspection related documents will be embedded with the report, assigned officer can refer inspection document online and there will have auto-text option in the report writing editor derived from the referred information by the officer. Inspection reports will be mapped with the inspection team.

- 5.2.5 **Scheme Management:** Licensees can submit application for schemes and this service will connect Scheme Horizontal Platform in the system for approval related workflow/decision processing with tools for load forecasting and financial scenario modeling.

**5.3 Petroleum:** This vertical service module will have the following major services to be accessed by the authorized user. Services can be added or updated in business logic layer as per the requirements of the Commission.

- 5.3.1 **Petroleum Transmission/Distribution/Marketing:** Using the Horizontal License Platform, this services can be processed by BERC. Applicant and BERC officials will get access this service area as described in eLicense Platform specification above.

- 5.3.2 **Codes and Standards development and assurance:** Gas related codes and standards can be accessed from this service by BERC officials. This service will just connect Code Standard Horizontal Platform as described above. Necessary reports will be designed as well.

- 5.3.3 **Advisory Services to the Government:** Necessary UIs and reports will be developed related to Petroleum sector and this service processing will connect Horizontal Government Advisory Service Platform as described above.



5.3.4 Energy Audit framework: This part will connect Horizontal Energy Audit Platform as describe above and necessary reports and UIs will be developed. During inspection, officials of BERC will have the facility to upload any real-time document in the system. Inspection System will have inspection checklist. Inspection team formation information will be upload as data by UI. At the time of writing inspection report, respective inspection related documents will be embedded with the report, assigned officer can refer inspection document online and there will have auto-text option in the report writing editor derived from the referred information by the officer. Inspection reports will be mapped with the inspection team.

5.3.5 Scheme Management: Licensees can submit application for schemes and this service will connect Scheme Horizontal Platform in the system for approval related workflow/decision processing with tools for load forecasting and financial scenario modeling.

5.4 **Administration:** This vertical service module will have the following major services to be accessed by the authorized user. Services can be added or updated in business logic layer as per the requirements of the Commission.

5.4.1 HR (PMS)- This module will have mail services – Appointment, Joining and Transfer, Promotion information recording, Leave application with approval system, Separation/Termination/Resignation recording, Internal Training information, International Exposure nomination/information. All related UIs and business processes will have to be developed.

5.4.2 Office Management: This will have Security and Logistics Management, Inventory Register Management, Meeting minutes filing, Office Maintenance requisition and service management/tracking. All related UIs and business processes will have to be developed.

5.4.3 Contract Administration: This will have the services - 3rd Party Agreements Recording, Internal Agreements recording and MoUs recording/searching. All related UIs and business processes will have to be developed.

5.5 **Finance and Accounts:** This vertical service module will have the following major services to be accessed by the authorized user. Services can be added or updated in business logic layer as per the requirements of the Commission.

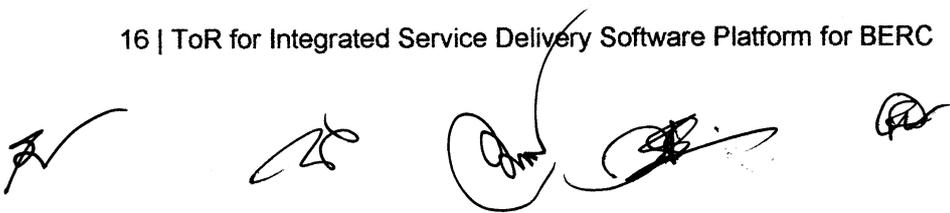
5.5.1 Payroll: This will include Salary and Bonus payment/Management of internal staffs along with Salary Advance, Staff Loan and Adjustment. In addition to that printing accounts payee cheque facility will also be needed. Necessary UIs, reports and searching options are needed. Leave encashment option will be there as well.

5.5.2 Fund Management: This part will include General Provident Fund (GPF) Management, Pension Fund Management, Welfare Fund Management, Loans from external sources and Grants. Necessary UIs, Reports and Tracking system will be developed. UIs for loan amortization, interest information on loan, Grants providers profiling, grants lifetime information etc associated information needs to handle under this service group. For Staff GPF, necessary transaction reports and process for deducting GPF portion from salary will also be automated, in addition to that, system will have the option to receive GPF subscription from staffs by separate UIs as well. For Invested Fund, necessary Bank/FI's information, account information and relevant history needs to be managed in this service group. There can have (not limited to) different types of external and internal fund system to be managed by the system namely – BERC Research Fund, Power Sector Development Fund, Energy Security Fund, Gas Development Fund, Oil Sector Development Fund. For internal funds, necessary UIs and processes are to be developed for transactions and reporting. For external funds,

- system will have data capture facility for BERC's monitoring over the transactions and utilizations of those funds.
- 5.5.3 Revenue: This part will handle collecting revenues and running process with reports for License Issue/Renewal Fees collection, System Operation Fees, Arbitration Fees, and Bank Interest etc. Head of revenue can be added from configuration module along with a provision for creating process associated with that head.
  - 5.5.4 VAT and Tax: Necessary UIs and integration with other modules for VAT collection from external and internal sources, Income Tax from external and internal sources,. Necessary reports are to be developed also.
  - 5.5.5 Cash and Bank: Cashbook, Checkbook Register, Petty Cash Management, Voucher Entry, Bank Account Management, Bank Draft Information, Pay Order/DD/EFT information/processing, Fixed Deposit and Investments information management are the core functions here those are to be developed. According to standard double entry system, this service will manage BERC's regular vouchers, cash and bank transactions.
  - 5.5.6 Budget and Chart of Accounts: CoA Management and Budget Preparation are main two areas of services here. System will have the facility to populate, edit, update, and add CoA as per standard public accounting system in Government along with reports. Necessary UIs will also to develop for setting rules for retrieval of data to prepare budget. User will have the facility to create budget online with the help from Data Platform. Data Export Import facility is also needed.
  - 5.5.7 Payments: Both 3<sup>rd</sup> Party Bills and Internal Bill entry system are to be developed. 3<sup>rd</sup> Party profiles will be stored in Directory Platform and that will be connected in this service area. Each party will have its unique ID and payments will be made by UIs. Necessary accounts entries will be done internally in the back-end and vouchers will be created automatically, cashbook and ledger will be updated accordingly.
  - 5.5.8 Fixed Asset Management: This service group's digitization scope include Fixed Asset Purchase process, Depreciation Management with accounting, Fixed Asset Register, Asset Write Off process and Asset Transfer/Receive. UIs, reports, approval process and necessary data processing will be the parts of this digital transformation.
  - 5.5.9 Inventory and Store: This will be a shared sub-module that will have shared access for multiple modules (e.g. Accounts, Admin etc which is configurable by the Commission). This will include Material Requisition, Material in/out, Store position and necessary approval process along with reports.
  - 5.5.10 Reporting: Major required reports (not limited to) will include Voucher, Trial Balance, Cashbook, Ledger, Receipts and Payment statement, Cash Flow Statement, Equity Statement, Revenue Statement, Reconciliation Report, Balance Sheet/Financial Position. Reporting tools needs to have data export facility and template customization facility in the system.
- 5.6 **Tariff:** This vertical service module will have the following major services to be accessed by the authorized user. Services can be added or updated in business logic layer as per the requirements of the Commission.
- 5.6.1 Tariff determination/Adjustment Proposal: System needs to have UIs and process management for receiving Tariff determination or adjustment proposal from external stakeholders. Proposal submission with necessary data and its lifecycle needs to be there. This proposal will be sectoral e.g. Electricity, Gas, Petroleum. Full proposal and its decision life cycle will be digital.
  - 5.6.2 Proposal Screening: This portion will run screen system online by BERC's internal officials System needs to have facility to insert Tariff related committee information



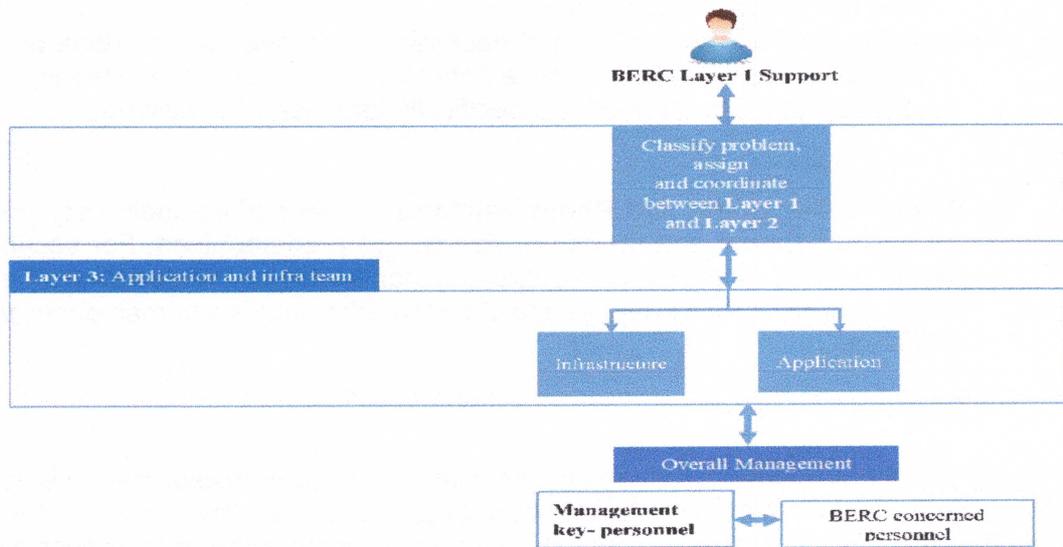
- along with their decision processes. Notification to proposer(s) and interactive data/information sending/receiving facility will be needed.
- 5.6.3 Proposal Analysis: This module will connect Unified Accounting System's data for analysis and decision processing on Tariff adjustment/determination system. Notification to proposer(s) and interactive data/information sending/receiving facility will be needed.
- 5.6.4 Hearing and Decision Management: This will connect eCourt, Hearing and Causelist platform to conduct Hearing, Scheduling and decision processing as described in above regarding that horizontal platform. This will also connect Law repository for legal reference management and will have to have access to historical tariff data at stage of analysis, hearing and decision management.
- 5.7 **Law and Rules:** This vertical service module will have the following major services to be accessed by the authorized user. Services can be added or updated in business logic layer as per the requirements of the Commission.
- 5.7.1 This module will have digital intervention in Dispute resolution, Complaint Management, Causelist, Legal support to Public Hearing and Rules formulation. System will have interface and background process being integrate with eCourt and DRS platform to handle receiving/managing disputes, complaints, hearing and decision management. Systems needs to have facility to refer real-time law/rules reference during hearing or during management of decisions. In public hearing, this module, being integrated with Law/Rules repository will have to be able to support with data during Hearing and Case Management. Petitioners profiles will be recorded and historical data will be digitally arranged in such a way that can be accessed later for any reference further. A tracking system will be there to track complaints and dispute resolution status along with a workflow to manage/forward issues from/to users as configured from Configuration module and as decided bt the Commission.
- 5.7.2 Any Law or formulated Rules will be recorded in Law Repository in Directory Platform in such a manner that it will be used by eCourt Platform. Necessary UIs and import facility will be here in this module.
- 5.7.3 Necessary inter workflow will be able to receive disputes, complaints, screening the same, file-flow for internal processing, and for final decision. All the decisions will link Causelist online as public information as decided by the Commission.
- 5.7.4 Consumer Affairs: This module will deal with the services -Consumer Level complaints for resolution, Hearing and Decision Management. Necessary UIs for complaint submission will be developed. This will connect DRS platform in the system as described earlier above and using workflow management, decision management system will be developed. Tracking in dashboard and transferring disputes to Law/Other Sections will be also needed. This services will connect eCourt and Causelist system for hearing and order management. In addition to that, Notification Platforms will serve notice services being integrated among those platforms. System will have provision to integrate Existing Government GRS platform on demand in collaboration with Cabinet Division.
- 5.8 **Research and Analytics:** This vertical service module will have the following major services to be accessed by the authorized user. Services can be added or updated in business logic layer as per the requirements of the Commission.
- 5.8.1 Research Proposal: System needs to have interface and internal process to receive Research Proposal and screening the same with approval system.
- 5.8.2 Tracking: Proposal and progress can be tracked by interfaces. Search option will be there and interactive blog can also be added.



- 5.8.3 **Research Reference Repository:** System will have provision for creating a repository for research works preserving relevant documents, URLs, Reports, Journals, news and other research documents that can be invoked or referred by the researches on demand.
- 5.8.4 **Policy Linkage and Analytics:** This connects the Data Platform to store and manage research works and outputs that will facilitate users conduct any analysis through Analytics UI from this module. Researcher Profile will also be recorded. Output of any research may link any policy matters that can be determined by users by means of data analysis by UI from this module integrating Horizontal Data Platform.

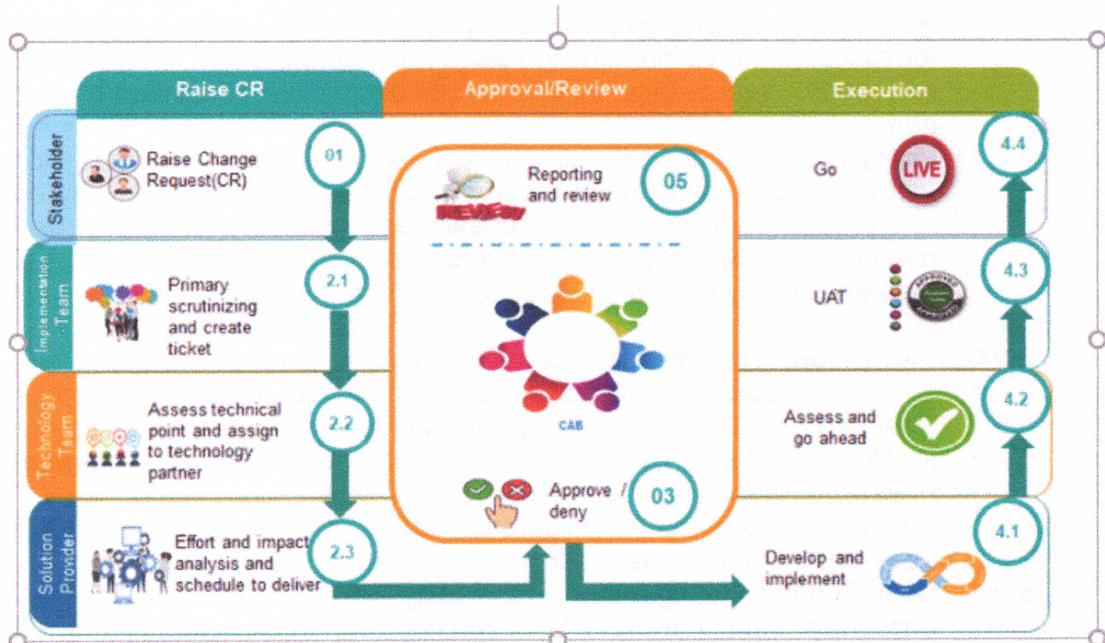
**5.9 Configuration:** This module will handle master configuration and end user support administration. Major features required in this module are as follows:

- 5.9.1 **User and Role Management:** System will have necessary UI and process automation for New User Setup/Update, Internal/External User Profiling, Password Management, Password Retrieval, User Role Setup, Role Assignment, RBAC ( Mandatory, Discretionary Access ) configuration setup, User Session Monitoring System, User Logs and all other system administration related setup.
- 5.9.2 **User Support Management:** This facility will allow online ticketing system for layer based user support system. User can raise support ticket and that will follow a support workflow among internal and Vendor's support Engineers and a Dashboard will be there to track support progress.



- 5.9.3 **System Change Management:** User can raise Change Request which will follow change management workflow and approval process. Version will be controlled accordingly. Vendor must ensure that all sources are maintained through market leading source repository solution (Ex: Bit Bucket, GitHUB etc). Production instances should get updates should get source directly from repository instead of regular file copy source upload.

*[Handwritten signatures and marks]*



5.9.4 Data Configuration: Primary Data Population and Configuration will be done by this module. Necessary UIs and processes will be develop to configure data, populate data and update data accordingly.

5.9.5 Initial Data Migration: UIs and necessary processes will be done by this module for migrating exiting data in feasible data structure. In case of any legacy, any middleware data system can be needed, specifically for eLicensing system.

6. **Scanned Document and Photo Validator:** In case of uploading scanned document in the system, format and maximum size will be predetermined. For security reason, files having harmful extensions (e.g. .exe, .dll etc) will not be allowed to upload. For uploading photo, size validator will be there to check whether that is a human photo within the limited size or not.

## 7. Security

The vendor should follow any of the industry standard secure development methodology such as (but not limited to) Comprehensive Lightweight Application Security Process (CLASP) by OWASP etc. The vendor should consider (but not limited to) common vulnerabilities such as SQL Injection, Cross Site Scripting (XSS) etc. Vendor will undertake responsibility for Input Validation Controls, Authorization/Authentication Control and other security controls in place in both test and production environment of application. SSL Certification will also be added.

The following vulnerabilities must be checked and to ensure security:

- Cross Site Request Forgery (CRSF)
- Cross Site Scripting (XSS)
- Session hi-jacking
- Session Fixation
- SQL Injection
- Input Validation/Filtering
- Output Escaping

- Code Injection
- Secure File Access

8. **ePayment Integration:** As mentioned earlier, BERC's Revenue collection systems need integration with ePayment gateway which includes Government/Private Payment Gateway and MFS.

9. **External/Internal Integration Scope:** System will have provision for future integration of external systems like Ibas++, D-Nothi, AI Bot, systems of other ministries (e.g. eTIN, RJSC, NID, eTrade License etc), eSigner/Digital Signature and with any other internal systems in future, as per the requirements of the Commission.

10. **Technical Specification:** The vendor will follow the any industry accepted and widely used open source-based technologies, frameworks, platforms and guidelines. Following are some technical specification which vendor should consider as reference for this platform. The final technology stack may evolve dynamically in accordance with the project's context, emerging technologies, and future trends based on discussion with BERC.

- Utilize an established open-source MVC framework (e.g., CakePHP, Laravel, or equivalent) with open-source language (e.g. PHP, Python).
- Employ an API-centric architecture using standard data delivery formats such as JSON.
- Implement a micro services-based architecture for modularity, scalability, and maintainability.
- Ensure secure communication between core and shared services through dynamic token mechanisms.
- Incorporate API lifecycle management, policy enforcement, and analytics-driven governance.
- Provide support for multi-tenancy within the platform.
- Enable automated testing and evaluation through frameworks such as Selenium or Robot Framework.
- Support standard authentication and authorization protocols, including SAML 2.0, OAuth2, JWT, and NTLM-IWA.
- Ensure compatibility with messaging protocols (e.g., AMQP 1.0, STOMP, MQTT, HTTP/HTTPS).
- Implement OAuth2 token revocation and introspection capabilities.
- Support federated Single Sign-On (SSO) using SAML2 or OpenID Connect, with external identity providers.
- Facilitate white-label login and registration processes.
- Enable rule-based authorization within the SSO framework.
- Employ modern front-end technologies such as Bootstrap, jQuery, and AJAX to enhance user experience.
- Utilize open-source relational and NoSQL databases (e.g., MySQL/PostgreSQL, MongoDB) with appropriate justification.
- Implement caching and content delivery optimization using Redis, Memcache, CDN, or Varnish.
- Ensure load balancing for scalability and failover mechanisms to maintain high service availability.
- Utilize version control systems such as Git or Bitbucket (in private repositories).

- Adopt issue tracking and change management tools such as Jira, Asana, or Git Issue Boards.
- Maintain transparency by providing BERC with full access to the technology stack, design, and data structures.
- Support iterative prototyping, agile development practices, and flexibility for future technology changes and integration.
- Use modern frameworks such as React.js for cross-platform or universal mobile app development.
- Integrate native application services efficiently using tools like Jasonette.
- Leverage Kubernetes (or equivalent) for container orchestration, deployment, and version management.
- Follow a full Agile project management methodology throughout the development lifecycle.
- All the UIs will be mobile responsive.
- Jira or Asana or similar tools for issue tracking and change management and project management
- Auto-scaling compatibility in software back-end to comply such deployment architecture.

**11. Hosting and Post Deployment System Monitoring:** BERC will provide data center collocation facility out of this scope in Government Data Center for hosting this whole system. This is noted that, any external system of other agencies integrated or to be integrated can be hosted anywhere according to the owner's convenience. Selected vendor will provide hosting requirement specification. But Vendor will have to have its own facility at their own cost for system development upto pre-pilot level of each module and delivery. Vendor will create pre-production test environment at BERC provided hosting facility. Vendor responsibility under this scope will be as follows:

- 11.1 Design, configure and deploy back-end processes and process monitoring tools.
- 11.2 Ensure proper monitoring of the back-end processes and necessary notifications for system downtime, overload or similar issues.
- 11.3 Continuous health check of Database, tuning database, tuning codes & queries and mitigating the issues.
- 11.4 Recording, managing reporting issues and user level application related technical problems, develop and deploy necessary solutions.
- 11.5 Source code management and version management.
- 11.6 Regular database tuning and application configuration support to hosted environment.
- 11.7 On-demand accountable consultancy support to Data Center in terms of Data Backup/Restore Scheduling, Back-end service execution.
- 11.8 Infrastructure Sizing: The responsibility of the selected vendor will include determining the right amount of resources like CPU, RAM, storage, and network bandwidth needed for the system to avoid over- or under-provisioning. This task includes (in collaboration with Data Center/Cloud Service Provider) - Resource Pooling, Elasticity and Perception of Infinite Capacity, Perception of Continuous Availability, Drive Predictability and security.

**17 Training:** Selected vendor will have following responsibilities related to training:

- 17.1. Develop Training Manual for end-users, system administrator and senior officials of BERC.
- 17.2 Continuous update of Training manual modules based on changes time to time in the system.

17.3 Vendor will conduct End-User training for approx 70 Officials of BERC, in case of phased delivery Vendor will design training schedule and conduct the same in batches accordingly. Separate System Admin Training for 15 Officials will also be needed. Once the full system is deployed, a refreshers training will be needed. Estimated training duration for end-users is 3 days, for admin users this will be for 5 days including the end-user's training.

17.4 BERC will provide Training Venue, Projector/Monitor, Laptops and internet facility for the participants. But Vendor will conduct training and will manage Training Servers and other logistics. No associated TA/DA/Allowance/Honorarium will come under this scope by the vendor related to the training.

17.5 Once any module is deployed in LIVE environment, vendor will ensure on-spot and on demand hands-on support to any internal user to operate the system.

17.6 Training Venue will be in Dhaka City at BERC selected venue and the training will be non-residential.

**18. Documentation:** Selected vendor will develop following major documents for this digital platform and will delivery to BERC and will keep updated during the contracted period:

18.1 SRS and Test Cases

18.2 End User Training Manual, System Admin Training Manual, System Security Guideline

18.3 Hosting Specification and Back-end Diagram of Hosted System

18.4 Data Backup Process Manual

18.5 Api specification document

18.6 Database Attribute Level Diagram and DFD

18.7 VAPT and security compliance Report

18.8 Solution Architecture Diagram

18.9 All types of test reports.

18.10 Other related documents prepared for this assignment.

**19. Vendor Exit Process:** Basic procedure applicable to the exit process of the selected vendor on expiration/termination of the contract for this assignment will be as follows

**19.1 Document and Data Handover:**

- Original source of organizational data (If any)
- SRS/BRS with UCs, DFD, Architectural HLD, Application Architecture Diagram
- DB Schema and design principles document.
- Deployment Diagram and Configuration Specification Document
- BCP and DRP along with clear data backup/restoration process document
- Updated Operational Manual/SoP. All Training Manuals
- UAT Test Cases along with test results and feedback
- All Security Test Reports
- api specification document along with SI details.
- Detail Technology Stacks and compliance report.
- Third party reports/tools/licenses (if any)
- Any opinion on future works/incomplete issues (if any)
- User Support Report and associated open source tools related to user support.
- Change Management Records
- List of active and inactive users at all levels.
- Audit Log
- Load Test Report

**19.1 Deletion Confirmation:** Data deletion certificate from the vendor that all organization's residual data has been securely deleted from vendor's systems, backups, and employee devices.

**19.2 Access Management and Security**

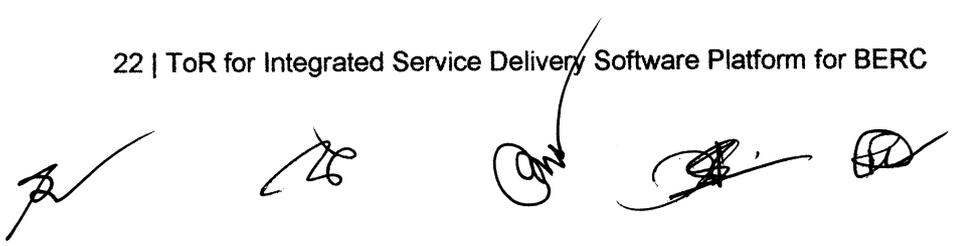
- Deactivation of vendor access to the system, including VPNs, cloud applications, shared drives, servers, email accounts, software applications, database, Audit Log, PR/DR site, backup, source code and physical building access.
- Handing over all physical assets owned by BERC used by vendor, such as laptops, access badges, pen drives, external hard drives etc.
- Handing over system monitoring access and operation process document.

**19.4 Transition and knowledge transfer:**

- Vendor will conduct knowledge transfer session with the counter part as directed by BERC to share the internal code/business level logics and to explore issues related to continuous operation of system.
- Vendor will conduct session with Admin Users and Data Center Expert to explain the system administration issues related to continuous operation of the system.
- BERC will have the freedom to select the team/person/authorized organization to take over the system from the vendor at the time of the exit process.
- Transition and handover process will be initiated atleast 6 month before the expiration of this contract.

**20. Standards and principles:** Following are the recommended standards to be followed in this project which is subject to change/update in collaboration with the client and subject to the compatibility with technology and requirements:

Standard	Focus Area	Importance
<u>ISO/IEC/IEEE 12207</u>	SDLC Processes	Primary framework for software from conception to retirement;
<u>ISO/IEC/IEEE 15288</u>	System Life Cycle	Used alongside 12207 to integrate software into larger hardware and business systems.
<b>IEEE 29119</b>	Testing	Global standard for software testing documentation and processes.
<u><b>NIST SSDF (SP 800-218)</b></u>	Secure Development	Framework of high-level practices; NIST released Revision 1 (v1.2) in late 2025 to mitigate modern vulnerability risks.
<b>OWASP Top 10</b>	Web Security	Critical 2025 candidate updates elevate software supply chain failures and AI-specific risks (OWASP Top 10 for LLMs).
<u><b>ISO/IEC 27034</b></u>	Application Security	Standardizes reusable Application Security Controls (ASCs) throughout the lifecycle.



<b>CI/CD Pipelines</b>	Automation Standards	Ensures consistent builds and deployments; incorporates automated security scans (DevSecOps).
<b>SOLID Principles</b>	Design Standards	Provides five core principles (Single Responsibility, etc.) to ensure modular and maintainable code.
<b>Docs-as-Code</b>	Documentation	Integration of documentation into the version control workflow alongside code for real-time accuracy.
<b>WCAG 2.2</b>	Accessibility	Legal and ethical standard for ensuring software inclusivity; increasingly mandatory for 2025 public-sector apps.

## 21. Eligibility Criteria of the firm

- 21.1 Minimum 10 years of experience in ICT business in Software Development as a registered company under RJSC in Bangladesh.
- 21.2 The vendor must have experience of developing and successful implementation of at least two software platforms for any Government/Semi Government/Autonomous Bodies in Bangladesh where multiple software solutions/modules are digitally integrated along with internal digital workflow for decision management. Those software platforms are to be up and running. Evidence (project completion certificate) of such experience from the respective office(s) along with URLs of those solutions will have to be submitted.
- 21.3 Vendor needs to have practical working experience of developing or customizing or integrating any Enterprise Service Bus or similar middleware solution. Proof and short brief of such experience will have to be submitted.
- 21.4 Need to have atleast one specific experience of developing and implementing any accounting/financial management software solution in any Government/Semi Government/Autonomous/Private Bodies. Proof (Project Completion Certificate from the Client) of such experience will have to be submitted.
- 21.5 Experience of developing software solutions related to Judiciary or Quasi Judiciary functions will have an added value.
- 21.6 Need to have necessary environment (Server/Cloud Infra) for web-based software solutions development. Information of such environment will have to be submitted.
- 21.7 Bidder will have to submit - Valid and up-to-date Trade License, Incorporation Certificate, VAT Certificate, TIN certificate, Up-to-date Tax return certificate, Last consecutive 3 years audited financial reports, Bank Solvency Certificate and proof of having office (Own/Rented) in Dhaka.
- 21.8 At least one successfully completed assignment (software development) with minimum value BDT 2 crore in last 7 years. Project Completion Certificate from the client will have to submit as proof.
- 21.9 Minimum annual average turnover is BDT 3 Crore/year in last 3 years and minimum working capital or credit line is 1 crore.
- 21.10 In case of JV, maximum one company can make JV with the Lead Company. Joint-venture agreement needs to have clear identification about their responsibility matrix. Both the companies will have to exist legally registered in Bangladesh under RJSC. Lead company

will have to have 10 years of experience as mentioned above. Lead Company shall have to comply financial and legal conditions as mentioned above.

21.11 Vendor needs to have following full time employees mentioned below (CV of the employees with their original signature and photograph will have to be submitted. All the CVs will be in common format. Incomplete or CV with different formats or CV without original valid signature will not be considered. Consultants are not mandatory to be the full time resource):

Position and Type	Qty	Minimum Academic Qualification	Minimum Professional Experience	Major assignments
Project Manager (Key Personnel-Full time)	1	BSc In Computer Science/CSE.	12 Years total experience in Software Design, Development, Implementation and Management, where 4 years in Software Project management.  Atleast one software project implementation experience in any project with Government of Bangladesh.	Oversee and manage the team, job scheduling among the team members, confirming delivery schedule, assuring timely delivery to the client, control time and cost overrun, coordinate among the stakeholders.
Solution Architect (Key Personnel-Full time)	1	BSc In Computer Science/CSE.	10 Years total experience in Software Design, Development, Implementation and Management, where 4 years in Solution Architecture design, ESB and in SI.	Design and Develop Solution Architecture, Code Framework, Code quality framework and ESB Integration advisories. Guide inter-module and inter-system communication protocols.
System Analyst (Key Personnel-Full time)	3	BSc In Computer Science/CSE	8 Years total experience in Software Design, Development, Implementation and Management, where 6 years in Software Requirement Analysis and Usecase Design. Atleast one of them needs to have software project implementation experience with Government of Bangladesh.	Requirement Analysis and lead SRS, UC and TC development. Freezing requirements and handle user requirement dynamics. Designing necessary process flow and DFD. Coordinate UAT.
Senior Software Engineer (Key Personnel-Full time)	3	BSc In Computer Science/CSE	8 Years total experience in Software Development using PHP/Python or similar Opensource MVC Framework, Experienced	Design and lead the development of complex codebase, mentoring and helping Software Engineers write codes and solve complex logics issues and modifications. Handle

			in AngularJS, Bootstrap, jQuery is preferred	code framework and reusability standards. Help UAT process.
Software Engineer (Front-end-3 Back-end-3, Common-1) (Key Personnel-Full time)	7	BSc In Computer Science/CSE	5 Years total experience in Software Development using PHP/Python or similar Opensource MVC Framework. Experienced in AngularJS, Bootstrap, jQuery	Coding and Debugging, helping Test Process and update codebase. Prepare SQL queries for back-end connectivity, batch processing and SQL operations.
System Integration Engineer (Key Personnel-Full time)	1	BSc In Computer Science/CSE	5 Years total experience in SI in PHP/Python and/or similar Opensource MVC Framework using REST API. Atleast one specific experience in SI in Bangladesh Government's Software System.	Analyze SI scope, create api, test and integrate external system and internal modules. Help Software Engineer accordingly.
Database Specialist (Key Personnel-Full time)	1	BSc In Computer Science/CSE.	8 years total experience in software development sector where 5 years in Database Design and Development using RDBMS (e.g. MySQL, PostgreSQL) and any nosql Database like MongoDB/MariaDB.	Design and Develop Database schema, connections, define keys, integrity and develop complex DB Query.
Data Migration Expert (Key Personnel-Full time)	1	BSc In Computer Science/CSE	8 Years total experience in Software Development sector where 2 years in design and development of ETL and in data migration scripting.	Analyze data migration scope and data structure. Prepare ETL and Data transmission scripts, execute scripts and migrate data. Create data middleware/adaptor when necessary.
DevOps Engineer (Key Personnel-Full time)	1	BSc In Computer Science/CSE	8 Years total experience in Cloud infrastructure operation management where 5 years in DevOps.	CI/CD Pipeline Management, Setting up real-time monitoring and logging stacks (e.g., Grafana, ELK Stack) to track system health, identify performance bottlenecks, Cloud & Container Management and environment provisioning. Checking code standards with competent AI tools.
Infra-structure Engineer (Key Personnel-Full time)	2	BSc In Computer Science/CSE	5 Years total experience in Cloud Infrastructure, Software Hosting, Auto Scaling, Sizing, Back-end/Server Configuration,	Infrastructure scope identification (Storage, RAM etc), Deployment Architecture Development, pre-production and production level hosting, sizing, data backup/restoration process

			Virtualization and System Monitoring.	development, server level configuration, CMDB development and continuous health check. Support layer 3 support related to infrastructure.
User Support Engineer (Key Personnel-Full time)	3	BSc In Computer Science/CSE	4 Years total experience in Software Development/Implementation Team where 2 years in end-user support service in any software development project.	Handle Layer-2 Support related to both Software, Data and Infrastructure (divided into group). Will ensure on-spot troubleshoot of the system related to data, software, cloud, Hardware and networks. Will be stationed in BERC office for on-site support.
Helpdesk Agent (Non-Key Personnel-Part-time)	2	BSc In Computer Science/CSE	1 Year experience in Software/Hardware User Support Service.	Will raise support ticket and user call, log that into ticketing system, handle Layer-1 support and on-site support to the users at BERC. Will help users operate the system on-site.
Training coordinator (Key Personnel)	1	BSc In Computer Science/CSE or Masters Degree with any Diploma/Certification in IT	Total 5 years' experience in IT sector where 1 specific Software System's end-user Training experience in any private/public Software Implementation project.	Will develop Training Manual, Training plan, session contents and will conduct/coordinate training on Software Operation and system management
Trainer (Key Personnel)	1	BSc In Computer Science/CSE	Total 3 years' experience in IT sector where 1 specific Software System's end-user Training in any private/public Software Implementation project.	Will conduct Software Operational Training. Will help Training coordinator develop training contents and presentations
Security Expert/Consultant (Non-Key Personnel-part time)	2	BSc In Computer Science/CSE with CISSP/CISA/CEH	Total 8 years' experience in Software sector where 5 years cloud hosted software system environment vulnerability assessment and security test.	Conduct VAPT and other Security Test for both Software and Infrastructure. Security Compliance control in both code and hosting system.
QA Engineer (Key Personnel-Full time)	3	BSc In Computer Science/CSE	5 Years total experience in Software Development/Design where 2 years in System's QA and Testing.	Test codes and modules, help Software Developer develop software according to standards and fix bugs.
Technical Writer	2	BSc In Computer Science/CSE	2 Years total experience in Software System's technical documentation.	Prepare necessary technical documents related to technologies and operation of technologies.
Accounting System Expert/Consultant	1	MBA/MCom(Finance/AIS/Accounting) or CA/ICMA/AC	10 Years total experience as Accounting and Financial Management professional with practical experience of using any	Works as Domain Expert for Accounting and Financial Management. Help System Analyst articulate accounts/finance related UC development. Interact with

(non-Key Personnel-part time)		CA or equivalent	Accounting ERP/Package professionally.	Clients for Accounts/Finance related need assessment for developing Accounts/Finance module.
Dashboard Designer/ UX Expert/ Consultant (Non-Key Personnel-part time)	1	BSc In Computer Science/CSE	5 Years total experience in Software System UX and Dashboard Design.	Assess user's model and analyze UX, help software developers design US and Dashboards.
Implementation/EDMS/Data Entry Assistant (Non-Key Personnel-part time)	2	BSc in any discipline with IT diploma/Certification Or BSc in Computer Science/CSE	Experienced in MS Office suit.	Preparing Primary Data Formats, Secondary Data Templates, Scan required documents & upload, manual data collection and feeding data, Make Primary Data Entries along with timesheet management.

**22 Duration of the assignment:** Total duration of this assignment is 2.5 years where 1.5 year for development, testing, piloting, training and full deployment of all the modules and 1 year for post deployment service & change management.

### 23. Copyright, ownership and Compliance

BERC will be the sole owner of this software system, its source codes, all documents and associated assets. Selected vendor will not be allowed to re-use any of its parts or documents for any other purposes without prior written permission from BERC. BERC will have the right to conduct external review, Load Test and/or IS audit (Standards, Security, Architecture, IS Governance) once system is declared to be implemented or after the implementation and Vendor will comply audit observations and will adjust the system accordingly during carrying out this assignment. BERC will arrange a project management space in its office in Dhaka that will facilitate IDE (Integrated Development Environment) and for monitoring the progress and for regular supervision on this project. Vendor's representative and BERC counterpart will be deployed over there for ensuring in-time delivery.