Requirements for the Selection of a Startup Firm for Designing and developing a a Comprehensive Application for Metering, Billing, Collection, and Other Services for LT & HT Consumers of KSEBL

I . Introduction:

KSEBL is presently having around 7500 HT/EHT customers. The billing and accounting of these consumers are being done through "Enrgise" application which was developed by TCS during 2009. Later it was taken over by KSEBL in 2012 and currently being maintained and modified by the KSEBL IT Team. The application developed in JAVA and Database in PostgreSQL.

The LT Billing application OrumaNet, which handles metering, billing, collection, new consumer registration, online bill payment, reconciliation, and accounts for LT consumers, was developed internally(KSEBL IT wing) over 10 years ago, This application serves 1.4 crore customers and currently manages 8 TB of data. Even though the application is currently stable, it needs to be revamped to incorporate modern technologies to keep pace with the evolving technological landscape and enhanced data analytical capabilities and latest security features. The application developed in PHP and Database in PostgreSQL.

II. Comprehensive Application for billing:

A unified billing application is suggested for both LT and HT consumers, as it serves the same purpose. The core functionalities for billing both types of consumers are fundamentally similar, with some modification for specific billing logic. Maintaining two separate applications is not ideal, given that both serve the same primary function. Therefore, consolidating these applications would streamline processes and improve operational efficiency, and potentially reduce maintenance costs.

III. Priority for HT application:

Due to the urgency of implementing the new application for HT/EHT consumers, it is necessary to prioritize the development of the HT billing application while developing a comprehensive application for electricity billing. Therefore, a phased approach is proposed that prioritizes the development of the HT billing component in the initial stage as the first phase

IV: Design Stage:

To prioritize the development of the HT/EHT application within the comprehensive application framework, the initial focus will be on designing a system that can

seamlessly accommodate both HT/EHT and LT billing applications. This design will include the following technical aspects:

- The application is developed using modular architecture to allow independent and integrated functions for HT/EHT and LT billing.
- Implementing a scalable database structure that can handle the large volume of data associated with HT/EHT and LT consumers.
- Integrating advanced data analytics tools and latest proven frameworks into the application.
- Ensuring the application can seamlessly integrate with existing systems, such as metering infrastructure, payment gateways, and customer management systems as inter-operable.
- Implementing robust security protocols to protect sensitive consumer data and ensure secure transaction
- Designing the application to comply with industry standards, Security and regulatory requirements

By focusing on these technical aspects, the development of the HT/EHT application will lay a solid foundation for a comprehensive billing system that can later incorporate LT billing functionalities.

V. Development of application:

The development of comprehensive software will be pursued through collaboration with an experienced and proven startup, while also utilizing manpower resources from both the startup and KSEBL for a joint development effort. Once a suitable startup is selected, a collaborative development model shall be established and the startup to work closely with KSEBL’s internal developmental team.

This collaboration will leverage the technical expertise and innovative approaches of the startup firm, combined with the domain knowledge and operational experience of KSEBL’s personnel.

This model will involve joint teams from KSEBL and the startup working together throughout the development life-cycle. The selected startup will bring in fresh perspectives and advanced technical skills, while KSEBL's team will provide valuable insights and domain knowledge. This joint effort is expected to result in a robust and well-integrated billing solution.

The KSEBL's team will provide domain expertise, technical support, data access, and Govt/Regulatory knowledge, while the startup will contribute its technical skills, agile development methodologies, and experience in building modern software applications.

A key aspect of this collaboration will be knowledge transfer and capacity building. KSEBL's internal team will have the opportunity to learn and work

alongside experienced developers from the startup, fostering a more skilled in-house team for future projects.

It is expected to develop a state-of-the-art billing application that meets current and future requirements while bringing up innovation and leveraging the strengths of both the startup and KSEBL's.

VI. Criteria for Selection of Startups:

1. The firm must have a proven track record in software application development to collaborate during the software application design phase.
2. The designers/programmers should possess expertise in handling projects using PHP, Java, and PostgreSQL databases.
3. The firm must provide skilled manpower resources to support the design and development process for collaborative efforts with KSEBL's IT wing, ensuring the timely and high-quality delivery of software applications.
4. The firm should have a minimum of 3-4 years of experience in software application design and development, preferably in the relevant domain of interest.
5. The firm must have successfully completed at least three projects of similar scale and complexity in the last two years.
6. The firm should provide proof of financial stability and health over the past two years.
7. The firm must demonstrate the ability to supply skilled manpower with expertise in software design, coding, and testing.
8. **Manpower Requirements**

The selected startups must provide the following types of manpower resources to ensure the successful execution of the project:

1. Software Architects
   Responsible for guiding the high-level design and system architecture, ensuring scalability, security, and alignment with project objectives. They will also oversee the integration of various system components.
2. UI/UX Designers
   Focused on designing intuitive and user-friendly interfaces, ensuring that the user experience (UX) is seamless and meets the needs of the end users. They will work closely with developers to translate design into functional interfaces.
3. Developers
   Skilled in various programming languages, with expertise in the required tech stack (e.g., PHP, Java, PostgreSQL). Developers will be responsible for

coding, debugging, and implementing system features based on the design and technical specifications.

4. QA/Testers
   Quality Assurance (QA) personnel will ensure thorough testing of the software, including functional, performance, security, and user acceptance testing. Their role is critical in identifying and resolving any bugs or issues before deployment.
5. Project Managers
   Project Managers will be responsible for coordinating tasks, managing the project timeline, and ensuring that milestones are met. They will also serve as the primary point of contact between KSEBL and the startup, facilitating communication and reporting progress.
6. System Analysts (Optional)
   System Analysts will collaborate with both developers and stakeholders to ensure that system requirements are fully understood and translated into technical solutions. They will be responsible for bridging any gaps between business needs and technical implementation.

9. Resource Utilization Plan

The manpower resources from the selected startups will be integrated into the project in the following phases:

1. Phase 1: Requirement Gathering
   In collaboration with KSEBL's in-house teams, the startup will assist in gathering detailed functional and non-functional requirements. This phase includes stakeholder consultations, data analysis, and identification of system objectives and constraints.
2. Phase 2: System Design
   Startups will actively contribute to designing the system architecture, database structures, and user interface frameworks. This will involve outlining technical specifications and ensuring that design decisions align with project goals and future scalability requirements and the same to be discussed and finalised with KSEBLIT team.
3. Phase 3: Prototyping
   Startups will lead the development of prototypes, focusing on validating key project requirements and functionality. Early prototypes will be used to gather feedback from stakeholders and refine the system design before moving into full-scale development.

4. Phase 4: Development and Testing
   Startups will provide full development support, helping to build the codebase while adhering to best practices for software engineering. They will also support quality assurance (QA) efforts, including rigorous testing to identify bugs, ensure system stability, and validate performance metrics.
5. Phase 5: Deployment and Maintenance
   The startups will assist in deploying the system, ensuring a smooth transition from development to production environments. Post-deployment, they will provide ongoing support for maintenance, updates, and issue resolution to guarantee system reliability.
6. Resource Allocation
   Skilled manpower will be allocated according to the project phases, ensuring that sufficient expertise is available at each stage. This includes design, development, testing, and post-launch support to meet the project's needs.
7. Continuous Knowledge Transfer
   Throughout the project, startups will ensure continuous knowledge transfer to KSEBL's in-house teams. This will facilitate better integration of resources and ensure KSEBL's teams are equipped to manage the system post-project completion.

10. Performance Metrics

Key performance metrics will be used to evaluate the progress and performance of the selected startups:

1. Timely Deliverables: Adherence to the project timelines by meeting all deadlines and milestones for the various phases of the project. Consistent delays will impact performance evaluations.
2. Quality of Output: Evaluation of the overall quality of the deliverables, including the design, code efficiency, user interface, user experience, and adherence to technical specifications.
3. Innovation Index: Contribution of innovative solutions or approaches to overcoming challenges during the project. Emphasis will be placed on creativity and problem-solving capabilities that add value to the project.
4. Team Collaboration: Effectiveness of collaboration with KSEBL's in-house teams, ensuring smooth communication, coordination, and integration of resources throughout the project.
5. Responsiveness: The startup's ability to promptly address issues, feedback, and required changes during the project lifecycle. High responsiveness ensures continuous progress and reduces downtime.

6. Scalability and Flexibility: The ability of the startup to design and implement solutions that are scalable and adaptable to future needs, ensuring long-term sustainability of the project.
7. Compliance and Security: Ensuring that all deliverables meet regulatory compliance, security standards, and best practices for data protection, especially given the sensitive nature of the project.

11. Terms and Conditions

1. Contract Period: The duration of the contract shall be a minimum of 1 year and a maximum of 2 years, subject to renewal based on performance.
2. Termination: KSEBL reserves the right to terminate the contract at any time if there is a significant lapse in skills, performance, or adherence to the agreed-upon timelines and quality standards.
3. Confidentiality: The startup must sign a Non-Disclosure Agreement (NDA) to ensure the protection of sensitive project information. Unauthorized disclosure of any project details will result in immediate termination of the contract.
4. Ownership: The intellectual property (IP) developed during the project will remain the sole property of KSEBL. The startup shall have no rights over any aspect of the work produced unless explicitly stated otherwise in a separate agreement.
5. Liability: Startups will be held liable for any delays, quality issues, or other deficiencies in their deliverables. KSEBL reserves the right to claim compensation for damages arising from such lapses.
6. Performance Review: KSEBL will conduct regular performance reviews to ensure the startup meets the project milestones and adheres to quality standards.
7. Compliance with Regulations: The startup is expected to comply with all applicable laws, regulations, and industry standards throughout the project duration.
8. Agreement : The selected firm shall execute an agreement with KSEBL.
9. Payment Terms: Payment will be made in phases based on project milestones, as agreed upon by both parties. Any deviation from the project schedule may result in payment delays