ANNEX A

System High-Level Design Plan
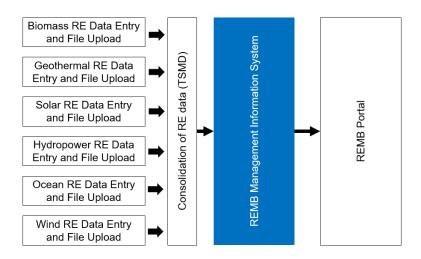
A. System Overview

The Renewable Energy Management Bureau Data Warehouse and Management Information System, also known as RIS, is a web-based application that will consolidate all the existing Renewable Energy Information available in different warehouses into a centralized database which will be made available through the internet.

The system will aggregate the data from different REMB sectors and present them in a logical format that the REMB management can then use to aid them in the decision-making process.

The RIS will be integrated into the REMB Portal. The portal will host the integration and dissemination of the information from the RIS.

Note: REMB Portal is part of the DOE Portal project that will be developed separately.

B. Conceptual Framework

C. Summary of System Features

The RIS will be accessible to all concerned divisions and field offices of REMB based on the given access rights. The following activities can be performed in the system:

- System logging in security mechanism
    - Logging in via SSO
    - Update profile information
- Customization of user dashboard
    - Display statistics of RE projects and details (per Energy Sector, per Field Office)
    - Display RE metrics data through various mediums
    - RE Performance Assessment dashboard
    - Easy-to-read Charts and Graphs

- o Creation of own dashboard gadget
- Data and file management
  - o Renewable Energy information
  - o Daily Operations Highlights
  - o Weekly Operations Highlights
  - o Upload/Download of files in CSV format
- Generation of reports
  - o Summary of Awarded RE Projects (Integration to EVOSS)
  - o Summary of Pending RE Projects
  - o Summary Report by Energy Sector and by Field Office
  - o Installed Capacity Report
  - o Potential Capacity Summary Report
  - o Additional Capacity Installation Report
  - o Thermal Capacity Summary Report
  - o RDF Capacity Summary Report
  - o Total Relinquished RESCS Report
  - o Total Terminated RESCS Report
  - o Geothermal Power Performance
  - o Creation of customized Reports
  - o Export Reports in excel, csv, pdf, and word formats
- User and access management
  - o Management of user records
  - o Management of permission sets
  - o Management of general system configurations
- Create an interactive Geographical Information System (GIS) and analyze spatial information
  - o RE Resource Map
  - o RE Resource Information by location (e.g., Project location, Region, Nationwide)
  - o List of Potential Sites
  - o List of Barangays at risk
  - o List of Operational Powerplants
  - o Installed Capacity per location
  - o Geothermal Potential
  - o Location map of targeted Capacity
  - o Other information to be determined
- Work planning and management of schedules
  - o Creation of Appointments and Events
  - o Viewing of Group Schedules
  - o Management of another user's calendar
- Webform building
  - o Creation of a webform
  - o Setting up of form design, system flow, approval process, etc.
  - o Drag-and-drop feature
- Audit trail procedures
  - o Audit trail information
  - o Audit trail report
- Approval and disapproval workflow
- Systems Integration
  - o EVOSS – integration of Contract Profiles and Project Profiles

- REMB Portal – dissemination of REMB MIS information to the REMB child portal
- SSO – log in to REMB MIS shall be via the DOE's single-sign-on mechanism
- Mail Server – an email notification shall be established for every event trigger
- Other systems to be determined
- Search and data filter functions
  - Search from contents of files (system records, PDF file, excel file, word file, etc.)
  - Displayed on each page of the system
- Bell and Email Notifications
  - Send and receive system alerts and notifications from the system on certain pre-configured data update events
- Other features
  - Help System
  - Feedback and Complaints Form
  - RPS Requirements
  - Quick Links to Policy Mechanisms

D. System Configuration

The web application can be accessed using any major web browser and should be mobile responsive. It requires a connection to the internet in access application. After accessing the Uniform Resource Locator (URL), it can be used immediately without any further configuration.

E. User and Role Mapping

User	Role
NREB – TSMD Administrator	System Administrator
SRS I, II, III	Filer
Sr. SRS	Filer, Approver
Supervising SRS	Approver
Division Chief	Approver
Upper Management, ITMS, Other External Users	Watcher/Viewer
TSMD Sr. SRS	Receiver

F. Workflow Steps

- The REMB internal user goes to a web page that embeds the system workflow and login process.
- The REMB internal user logs in to the system. The REMB system modules are configured so that the system display different screen type as the user role changes (e.g., Biomass user can also see the Biomass RE data).
- The REMB internal user creates a Renewable Energy record which contains the project profile information, company and contract profile, FIT monitoring information, financial commitment information, green jobs generated information and RE project status.
- All system transactions and records will be displayed in a list table.

- All system records will undergo a review and approval process.
- The record entered by the REMB concerned division is automatically populated for the view of the Technical Services Management Division (TSMD).
- All system records will be sent to the system database for generation of reports, the population of GIS data, and other future use.

G. System Menu and Navigation

The RIS is a tabbed application, which consists of ten (10) major tabs. Main Menus will be used to navigate features of the system and guide the user to the action or information they seek.

- Dashboard
- User Profile
- Renewable Energy
- File Manager
- RPS
- RE Plants
- Maps
- Calendar
- Build Form
- Settings

ANNEX B
Schedule of Activities

Task Name	Duration	Predecessors	Resource Names
REMB MIS - Software Components	**163.75 days**		
Initiating	**5 days**		
Initiate Project Details	1 day		Project Manager
Prepare Project Plan	2 days	3	Project Manager
Develop Communication Plan	2 days	3	Project Manager
Develop Risk Management Plan	2 days	3	Project Manager
Conduct Internal Kick-off Meeting	0.25 days	6	Data Center Specialist, Full Stack Developer 1, Full Stack Developer 2, Project Manager, Quality Assurance Tester, UI/UX Designer
Onboard Firm Resources	0.75 days	6	Data Center Specialist, Full Stack Developer 1, Full Stack Developer 2, Project Manager, Quality Assurance Tester, UI/UX Designer
Conduct External Kick-off Meeting (with REMB)	0.25 days	8	Data Center Specialist, Full Stack Developer 1, Full Stack Developer 2, Project Manager, Quality Assurance Tester, UI/UX Designer
Perform Project Audit	1 day	9	Project Manager
Planning and Preparation	**11 days**		
Plan Project Activities	1 day	10	Project Manager

Task Name	Duration	Predecessors	Resource Names
FS Walkthrough	3 days	12	Data Center Specialist, Full Stack Developer 1, Full Stack Developer 2, Project Manager, Quality Assurance Tester, UI/UX Designer
Develop User story Board	3 days	13	Data Center Specialist, Full Stack Developer 1, Full Stack Developer 2, Project Manager, Quality Assurance Tester, UI/UX Designer
Review of User stories with Project Team	1 day	14	Data Center Specialist, Full Stack Developer 1, Full Stack Developer 2, Project Manager, Quality Assurance Tester, UI/UX Designer
Finalize Project Activities	0.5 days	15	Project Manager
Create Deliverables and Risk Registry	0.5 days	16	Project Manager
Set up Development Environment	1 day	17	Data Center Specialist
Perform Project Audit	1 day	18	Project Manager
Executing	**109.5 days**		
Plan Test Activities	5 days	19	Quality Assurance Tester
Iteration 1	**18.5 days**		
Develop Iteration 1 (System UI Design and Quick Wins)	10 days	18	Full Stack Developer 1, Full Stack Developer 2, UI/UX Designer
Unit Test Iteration 1	2 days	23	Full Stack Developer 1, Full Stack Developer 2, UI/UX Designer
Functional Test Iteration 1	5 days	24	Quality Assurance Tester
Conduct Iteration 1 Demo with REMB	0.5 days	25	Data Center Specialist, Full Stack Developer 1, Full Stack Developer 2, Project Manager, Quality Assurance Tester, UI/UX Designer
Review Product Backlogs	1 day	26	Data Center Specialist, Full Stack Developer 1, Full Stack Developer 2, Project Manager, Quality Assurance Tester, UI/UX Designer
Iteration 2	**36.5 days**		
Develop Iteration 2 (Backlogs + REMB Portal Integration)	20 days	27	Full Stack Developer 1, Full Stack Developer 2, UI/UX Designer
Unit Test Iteration 2	5 days	29	Data Center Specialist, Full Stack Developer 1, Full Stack Developer 2, UI/UX Designer
Functional Test Iteration 2	10 days	30	Quality Assurance Tester
Conduct Iteration 2 Demo with REMB	0.5 days	31	Data Center Specialist, Full Stack Developer 1, Full Stack Developer 2, Project Manager, Quality Assurance Tester, UI/UX Designer
Review Product Backlogs	1 day	32	Data Center Specialist, Full Stack Developer 1, Full Stack Developer 2, Project Manager, Quality Assurance Tester, UI/UX Designer
Iteration 3	**37.5 days**		
Develop Iteration 3 (Backlogs + Data Migration)	15 days	33	Data Center Specialist, Full Stack Developer 1, Full Stack Developer 2, UI/UX Designer
Integrate REMB MIS and REMB Portal	5 days	35	Data Center Specialist, Full Stack Developer 1, Full Stack Developer 2, UI/UX Designer
Unit Test Iteration 3	2 days	36	Data Center Specialist, Full Stack Developer 1, Full Stack Developer 2, UI/UX Designer

Task Name	Duration	Predecessors	Resource Names
Functional Test Iteration 3	15 days	37	Data Center Specialist, Quality Assurance Tester
Migrate REMB Data and Contents	22 days	35	Data Center Specialist, Full Stack Developer 1, Full Stack Developer 2, Quality Assurance Tester, UI/UX Designer
Conduct Iteration 3 Demo with REMB	0.5 days	39	Data Center Specialist, Full Stack Developer 1, Full Stack Developer 2, Project Manager, Quality Assurance Tester, UI/UX Designer
User Acceptance Testing	**16 days**		
Conduct User Acceptance Testing (REMB)	4 days	40	Data Center Specialist, Full Stack Developer 1, Full Stack Developer 2, Project Manager, Quality Assurance Tester, UI/UX Designer
Conduct User Acceptance Testing (LFO)	2 days	42	Data Center Specialist, Full Stack Developer 1, Full Stack Developer 2, Project Manager, Quality Assurance Tester, UI/UX Designer
Conduct User Acceptance Testing (VFO)	2 days	43	Data Center Specialist, Full Stack Developer 1, Full Stack Developer 2, Project Manager, Quality Assurance Tester, UI/UX Designer
Conduct User Acceptance Testing (MFO)	2 days	44	Data Center Specialist, Full Stack Developer 1, Full Stack Developer 2, Project Manager, Quality Assurance Tester, UI/UX Designer
Modification based on Feedback	5 days	45	Full Stack Developer 1, Full Stack Developer 2, UI/UX Designer
Conduct Final Product Demo	0.5 days	46	Data Center Specialist, Full Stack Developer 1, Full Stack Developer 2, Project Manager, Quality Assurance Tester, UI/UX Designer
UAT Sign-off	0.5 days	47	Project Manager
Perform Project Audit	1 day	48	Project Manager
Training	**11 days**		
Plan Training Activities	2 days	49	Project Manager
System Admin Training	2 days	51	Data Center Specialist, Full Stack Developer 1, Full Stack Developer 2, Project Manager, Quality Assurance Tester, UI/UX Designer
REMB End-Users Training	2 days	52	Data Center Specialist, Full Stack Developer 1, Full Stack Developer 2, Project Manager, Quality Assurance Tester, UI/UX Designer
LFO End-Users Training	1 day	53	Data Center Specialist, Full Stack Developer 1, Full Stack Developer 2, Project Manager, Quality Assurance Tester, UI/UX Designer
VFO End-Users Training	1 day	54	Data Center Specialist, Full Stack Developer 1, Full Stack Developer 2, Project Manager, Quality Assurance Tester, UI/UX Designer
MFO End-Users Training	1 day	55	Data Center Specialist, Full Stack Developer 1, Full Stack Developer 2, Project Manager, Quality Assurance Tester, UI/UX Designer
Training Sign-off	1 day	56	Project Manager

Task Name	Duration	Predecessors	Resource Names
Document User Manual	5 days	49	Project Manager
Perform Project Audit	1 day	57	Project Manager
Final Preparation	**10 days**		
Plan Cut-over Activities	3 days	59	Data Center Specialist, Full Stack Developer 1, Full Stack Developer 2, Project Manager, Quality Assurance Tester, UI/UX Designer
Inform REMB of the Go Live Schedule	1 day	61	Project Manager
Plan Transition to Operations Management	5 days	62	Data Center Specialist, Full Stack Developer 1, Full Stack Developer 2, Project Manager, Quality Assurance Tester, UI/UX Designer
Perform Project Audit	1 day	63	Project Manager
Deployment	**3 days**		
Deploy System to Production	1 day	64	Data Center Specialist, Full Stack Developer 1, Full Stack Developer 2, Project Manager, Quality Assurance Tester, UI/UX Designer
Perform Smoke Testing	1 day	66	Project Manager, Quality Assurance Tester
Go Live	1 day	66	Data Center Specialist, Full Stack Developer 1, Full Stack Developer 2, Project Manager, Quality Assurance Tester, UI/UX Designer
Perform Project Audit	1 day	68	Project Manager
Hypercare	**15 days**		
Perform 14 days Hypercare Support	14 days	68	Data Center Specialist, Full Stack Developer 1, Full Stack Developer 2, Quality Assurance Tester, UI/UX Designer
Project Sign-off	1 day	71	Project Manager
Perform Project Audit	1 day	71	Project Manager
Closing	**1.25 days**		
Conduct Closure Meeting	0.25 days	73	Project Manager
Update WBS Charge Account Status	0.25 days	75	Project Manager
Secure Closure Document Sign-off	0.25 days	75	Project Manager
Secure Project Acceptance Certificate	0.25 days	75	Project Manager
Send Stakeholders Satisfaction Survey	1 day	75	Project Manager
Prepare Project Final Report	1 day	75	Project Manager

ANNEX C

Format for Project Composition Board

Company Overview	[insert]		
Rate Card			
	Project Role / Job Function	Level	Monthly Rate
	Full-Stack Developer	Senior	[insert]
	UI/UX Designer	Senior	[insert]
	Quality Assurance Tester	Senior	[insert]
	Data Center Specialist	Senior	[insert]
Technology Stacks			
	Function Area	Selected Technologies	Advantage
	Backend Development	[insert]	[insert]
	Frontend Development	[insert]	[insert]
	Testing	[insert]	[insert]
	Cloud Server	[insert]	[insert]
Cloud Subscription Specifications	[insert]		
Testing Strategies	[insert]		
Code Quality Assurance	[insert]		
UI/UX Sample Design	[insert]		

ANNEX D: Technical Specifications

Technical Specifications

All items offered must be described in the column reserved for such purpose in the below table, responding to each of the line specifications described for each item. For each specification line of each item, bidders must -in addition to their description of the product/service offered- highlight clearly the wording « Agreed, will comply » must be stated.

Technical Specifications	Bidder's Compliance
1. Software requirements	
Ownership, Intellectual Property, Licenses, Source Codes, and SDKs — Intellectual Property exclusively belongs to UNDP and the DOE/REMB: UNDP and the DOE/REMB are contracting development services. Correspondingly, the Contractor shall provide all source codes and assign all intellectual rights to the UNDP and DOE/REMB and may not reuse them for any other purpose. The Contractor warrants and represents that the DOE/REMB, as the End-user, will be granted the same rights granted to UNDP.	[response]
UNDP and DOE/REMB shall be the exclusive owner of the Work, including all output, new software/application, systems, programs, source codes, deliverables, documentation, and proceeds that may be created out of or in connection with the Contractor's performance of services and delivery of work covered.	[response]
There shall be no hidden costs: The Contractor shall acquire and maintain at their own cost software products and licenses for the test and development environments necessary to develop, release and maintain the software in development and/or in maintenance. Any software development kit or component needed to guarantee the full operation in the production of the solution as requested must be included in the offer, and no extra costs can be accepted thereafter to comply with the requirements.	[response]

Technical Specifications		Bidder's Compliance
	There shall be no time or usage limitation or other restrictions on third-party products or libraries the Contractor chooses to employ. All third-party products should be from the public domain or have an MIT, BSD, or Apache license. Other permissive open-source licenses will be accepted but must be pre-approved by UNDP and the DOE/REMB to avoid any disagreement over interpretation.	[response]
Copyright infringement	The Contractor has or shall secure permission from the rightful owner to use any third party owned images, design elements, applications, and licenses, such as Software, Hardware, and Infrastructure, provided or procured and used by the Contractor for the performance of the Services or the creation of the Application.	[response]
Release Management	Continuous Integration and Version Control: The building of the applications from source code and other artifacts shall be fully/semi-automated, and user-friendly. The source code will be made available throughout the project using a git code repository.	[response]
	The continuous integration and version control tools must be made securely accessible to UNDP and DOE/REMB designated staff.	[response]
	Each commit to the code repository will include a relevant description of what the commit covers as issues or features.	[response]
	If there are problems with the deployment of a release and the End User/UNDP are not able to get a release installed, the Contractor shall assist in getting the release deployed to the satisfaction of End-User/UNDP.	[response]
	Unit, integration, load/stress, and security tests (based on OWASP Application Security Verification Standard) must be provided for all requested features. A white box testing approach will be used. Additional random (monkey) testing could be added, as necessary.	[response]

Technical Specifications		Bidder's Compliance
Issue Tracking during Hyper care period	The Contractor must maintain an issue tracking system where the Contractor and UNDP along with DOE/REMB together can follow up on issues related to this project.	[response]
	All tickets, regardless of their status, must be accessible by UNDP and DOE/REMB.	[response]
	The issue tracking system and its content should be transferred to a DOE/REMB server before the end of the hyper care period.	[response]

Documentation	A developer manual should:
	   a. List all technologies, toolkits, and libraries used in the software.
	   b. Describe the architecture of the system in detail.
		[response]

	The developer manual must be provided in the form of a wiki platform. It is set up at the beginning of the project and its content must reflect the delivery progress of the software.	[response]
	The developer wiki should be editable by UNDP or DOE/REMB staff throughout the project for the purpose of asking questions to the vendor or adding their own content to the developer manual.	[response]
	The developer wiki platform and its content should be transferred to a DOE/REMB server before the end of the hyper care period.	[response]
Access Control	Application access control shall be established, documented, and reviewed based on business and information security requirements.	[response]
	The application shall have a user registration and de-registration process implemented to enable the assignment of access rights.	[response]

Technical Specifications		Bidder's Compliance
	Access to applications shall be controlled by a secure log-on procedure.	[response]
Technological Requirements	*The versions of the software (and any other included in the solution) requested below must be the latest stable as of the signing of the contract.* The code repository and issue tracker must be based on gitea/GitHub.	[response]
	There should be open-source automation to be used for continuous integration (i.e., Jenkins, Atlassian Bamboo, etc.)	[response]
	SonarQube or any similar application for automatic code reviews. The tool will have to be configured to check against OWASP vulnerabilities.	[response]
	The database must be based on MySQL stacks.	[response]
	The backend must be based on NodeJS stack technologies/server-side languages.	[response]
	The web frontend should consist of fundamental frontend technology stacks (HTML, CSS, JavaScript, and its frameworks such as Vue Framework)	[response]
	Use an extensible logging framework like SLF4J with Logback, or Apache Log4j2, to ensure that all log entries are consistent.	[response]
	Because some frameworks have security flaws, build in additional controls or security protections as needed.	[response]
	The system must be cross-platform optimized for mobile phones/tablets.	[response]
	The deployment must be based on Docker and/or Kubernetes.	[response]

Technical Specifications		Bidder's Compliance
	The Contractor shall Implement Rollback or Catch-Up Plan when necessary.	[response]
	The Contractor shall select the most secure and stable versions of software components that are put together into the system. The Contractor shall conduct an assessment and avoid software components having known vulnerabilities and flaws, including those products that are about to be obsolete and will have issues regarding compatibility. The Contractor shall replace software components right after the discovery of its flaws and there is no remediation available.	[response]
	Integration of processes and other external software systems shall be seamless. Transfer of processing between computer programs shall not be delayed. Typical handshakes shall employ database-to-database connectivity and/or event-driven triggers (e.g., REMB MIS obtaining data from EVOSS).	[response]
	The system shall be interface ready.	[response]
	Programmatic interfaces shall be designed with Microservices principles in mind, particularly encapsulation so that external systems need only understand the interface specification to communicate with the registry system.	[response]
	Common components can be shared and reused so that adding, removing, and enhancing a function or feature can be easily done without any major re-coding work. The scalability scheme shall be completely described in the design document prior to implementation, the planned architecture should be submitted to UNDP, REMB, and DREAMS for approval.	[response]
Software, Hardware, and Infrastructure	The Contractor shall use industry-standard anti-virus software and devices to screen all Software, Hardware, Infrastructure, and/or Work prior to delivery to DOE/REMB to prevent any virus, worms, or other computer system or destroying, erasing, or otherwise harming any data,	[response]

Technical Specifications		Bidder's Compliance
	software, hardware, or infrastructure pertaining to DOE/REMB.	
	The Contractor shall ensure that all Software, Hardware, and Infrastructure used in the Services, including Firewalls, routers, network switches, and operating systems, shall log information to their respective system log facility or a centralized Syslog service in order to enable security reviews and analysis.	[response]
	Web server error responses shall avoid allowing server details, diagnostic data, and/or debugging information to be retrieved by the public	[response]
GUI	The system's graphical user interface must support access via the internet.	[response]
	All graphical user interfaces must be accessible using the latest version of Google Chrome, Mozilla Firefox, Microsoft Edge, Apple Safari, Microsoft Internet Explorer, and/or any major browser.	[response]
Data Protection	Software and data vulnerability controls shall be in place to prevent all methods of exploitation, destruction, compromising access, and data exposure. The system shall use TLS/SSL technology to encrypt communications between the user and the web application server. Web applications shall use HTTPS.	[response]
	Avoid using an inadequate key, or storing the key along with the encrypted data	[response]
	Data shall be fully encrypted to prevent unauthorized access. Strongly encrypt critical data at storage. A hash plus salt shall be implemented, or any stronger encryption mechanism.	[response]
2. Staffing Requirements		

Technical Specifications		Bidder's Compliance
Staffing Requirements	*By delivered, it is meant that the requirements above are developed, tested, and accepted by UNDP as per conditions described in this ITB.* Unless otherwise requested, all staff working on this project must meet the level of expertise and number of years of experience in the requested area and technologies.	[response]
	A maximum of two NodeJS Developers must be part of the team until the software requirements are delivered.	[response]
	A maximum of one Frontend Developer must be part of the team until the software requirements are delivered.	[response]
	A maximum of one Data Center Specialist must be part of the team until the software requirements are delivered.	[response]
	A maximum of one QA Tester/Quality Engineer must be part of the team until the software requirements are delivered.	[response]
	CVs must be provided for each resource mentioned in the requirements at bidding times. *UNDP may choose to interview some of the proposed profiles during the evaluation period, especially if there is any deviation regarding the criteria stated above, to ensure only senior (highly qualified) personnel is accepted.*	[response]
3. Schedule and operational requirements		
Schedule and operational requirements	The software's minimum requirements will have to be developed in three iterations starting from the date of contract signing. Each iteration must include unit and integration, other required tests demonstrating the delivered requirements, and data migration.	[response]
4. Technical Support		
	The Contractor will among others, but not exclusively, assist preparations, installations, and readiness of all provided	[response]

Technical Specifications		Bidder's Compliance
	software modules for the pilots, go live, and hyper care period.	
	At least the same development team must be ready for the provision of expedited and enhanced second-level support to the DOE/REMB Main Office and FOs in relation to the items provided as per the Contract, up to date. This refers essentially to support fixing issues with software and advising on infrastructure issues, including data capture, storage, communication amongst units and reporting, and help on data consolidation.	[response]
Technical Support	During the hyper care and cloud server 12 months subscription, technical support is requested to be provided expeditiously, at the following target customer status update time: ☐ Critical: Every 60 minutes or as agreed upon with the End User/s ☐ Target Resolution Time: 4 hours or less ☐ High: Every 2 hours or as agreed upon with the End User/s ☐ Target Resolution Time: 8 hours or less ☐ Medium: Upon Request ☐ Target Resolution Time: 24 hours or less ☐ Low: Upon Request ☐ Target Resolution Time: 3 business days	[response]
	If required on specific dates, the technical team should be fully available to travel to locations in Luzon Field Office, Visayas Field Office, and/or Mindanao Field Office, and assist/resolve the problem as required (travel and accommodation for this item should not be included in the offer as it will be conducted on a need basis and paid for accordingly).	[response]
	The cloud server shall have a monthly availability of 98%, measured on a 24x7 basis. System availability requirements do not vary by time of day.	[response]

Technical Specifications		Bidder's Compliance
	The system and the cloud server shall have a maximum tolerable downtime of 1 hour, during which time the system's operation shall be switched over to the backup site.	[response]
	Critical components of the software shall have the capability to monitor all available processors and transfer processing to the next available processor in case of processing errors or computer hardware failure. The transfer process shall be seamless and shall have minimal or no impact on other running processes or user transactions	[response]
	The software that will be developed by the Contractor shall be running and available for functional processing 98% of the time.	[response]
5. Training and know-how transfer		
Training and Awareness	The Contractor, together with the REMB MIS Technical Coordinator shall provide training for all DOE/REMB MIS users.	[response]
	The Contractor shall provide training for DOE/REMB MIS cloud server administrators.	[response]
6. Project Management and Implementation Requirements		
Communication Methods	The Contractor must have a collaborative platform such as Dropbox/Google Drive that stores and secures files in a central location.	[response]
	A short daily meeting (through conference calls as necessary) will be made to follow up on the last day's activities of each team member and the day's activities. At the very minimum, those meetings should include all the successful bidder's selected experts, as well as a UNDP representative.	[response]
Monitoring	Written communication on the project's progress must be made every completion of an iteration, or more frequently if	[response]

Technical Specifications	Bidder's Compliance
requested by UNDP. Communication should include relevant project information and updated excerpts from the project's risk management plan.	

7. Deliverable Acceptance Process	

| **Delivery Acceptance Process** | The deliverables will be subject to acceptance testing. The tests are made jointly by UNDP, DOE/REMB, and the Contractor, where UNDP and DOE/REMB provide guidance on the general test case and acceptance criteria, and the Contractor details the case with test data and detailed steps. UNDP and the DOE/REMB are free to test with other data and in other ways than planned.

There are three acceptance test outcomes:

▪ *Accepted*. The content is accepted according to the test plan. The project's phase starts transitioning to the post-implementation support phase without reservation. The Contractor will fix any defect discovered during the hyper care support period in accordance with the Service Level requirements defined in the Technical Support section above.

▪ *Tentatively accepted*. The content is not accepted according to the test plan, but the shortcomings are not so severe, and a list of issues is produced. Transition to the support phase could start and the Service Level requirements defined in the Technical Support section above apply. The Contractor is still liable to address defects raised by UNDP or the DOE/REMB.

▪ *Rejected*. The content is not accepted, and the shortcomings are so severe that an additional iteration must be put in place to fix the outstanding issues.

If any deliverable is deemed non-compliant (rejected) regarding any requirement, the whole system may be deemed non-compliant. In case of disagreement over the nature of an issue, such as whether it is a compliance issue, bug, or enhancement, UNDP is the ultimate decision-maker on the nature of the issue. Likewise, UNDP is the ultimate decision-maker on whether a given deliverable is compliant or not. | [response] |

Technical Specifications		Bidder's Compliance
	Each deliverable will be subject to acceptance of DREAMS and UNDP. The acceptability of any Deliverable will be based on whether the Deliverable meets the Acceptance Criteria mutually agreed upon by the Parties and defined pursuant to an applicable Project Plan or otherwise pursuant to the Agreement.	[response]
8. Compliance		
Compliance	The bidder must agree in writing to all requirements with <u>no deviation</u> in their bid. Improvement suggestions are welcome if they do not threaten delivery timelines, but may not constitute a selection criterion, and are subject to the agreement of UNDP.	[response]
9. Monitoring, Audit, and Accountability		
Monitoring, Audit, and Accountability	The system shall incorporate non-repudiation mechanisms to ensure data changes are undeniably linked to user accounts.	[response]
	When a user or system process creates or updates any data value, the system shall record the user ID, the data item changed, the previous value, and the timestamp.	[response]
	The system must have logs for traceability of system events.	[response]
	The system must have an audit trail that records all user actions.	[response]

ANNEX E: Sample REMB Reports/ Templates

In-Scope Process: Storing and processing (such as encoding, uploading, approval) of all awarded RE projects and their related processes.

Out of Scope Process:
1. RE Project Profiling and Application – this is being managed by an existing transaction processing system of DOE/REMB.
2. RE Project Pre-application Information, LOI, and Attachments – this is being managed by an existing transaction processing system of DOE/REMB.

FEATURE COMPARISON	Existing Transaction Processing Systems of REMB		System to be Developed
LIST OF PROCESSES	EAMS	EVOSS	RIS
Tracking of Pre-Application Information, LOI and Attachments	✓		
Geographical Information System (GIS) Tranmission and Distribution Lines			✓
Identification of Ideal sites for future RE projects			✓
Application Status Tagging		✓	
Renewable Energy Portfolio Management			✓
Storing and Processing of Biomass Data			✓
Storing and Processing of Geothermal Data			✓
Storing and Processing of Cost of Investments and Green Jobs Data			✓
Storing and Processing of Feed in Teriff Data			✓
Storing and Processing of Hydro & Ocean Data			✓
Storing and Processing of Solar & Wind Data			✓
RE Data Visualization			✓

1. **REMB Organizational Chart**
   a. **Office of Bureau Director and Assistant Director**

   b. **Biomass Energy Management Division**

(First organizational chart)

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                        Division Chief
                                                    Admin Aide VI

Technology Development and          Evaluation, Registration and Monitoring
   Management Section                              Section

     Supervising SRS                         Supervising SRS

Senior SRS  Senior SRS  Senior SRS      Senior SRS  Senior SRS  Senior SRS

  SRS II      SRS II      SRS II           SRS II      SRS II      SRS II

  SRS II      SRS II      SRS II           SRS II      SRS II      SRS II

        SRS I       SRS I                        SRS I       SRS I
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c. **Hydropower and Ocean Energy Management Division**

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                        Division Chief
                                                    Admin Aide VI

Resource and Technology Development   Evaluation, Registration and Monitoring
         Section                                   Section

     Supervising SRS                         Supervising SRS

Senior SRS  Senior SRS  Senior SRS      Senior SRS  Senior SRS  Senior SRS

  SRS II      SRS II      SRS II           SRS II      SRS II      SRS II

  SRS II      SRS II      SRS II           SRS II      SRS II      SRS II

        SRS I       SRS I                        SRS I       SRS I
```

d. Solar and Wind Energy Management Division

e. Geothermal Energy Management Division

f. NREB Technical Services and Management Division

Chief SRS

Clerk — Administrative Aide VI

Promotion and Policy Development Section

Information and Technical Research Section

Supervising SRS

Supervising SRS

Senior SRS — Senior SRS — Senior SRS

Senior SRS — Senior SRS — Senior SRS

SRS II — SRS II — SRS II

SRS II — SRS II — SRS II

SRS I

SRS I

2. Daily Operations Highlight Report Template (to be developed as a web form)

a. Generation

		DEPARTMENT OF ENERGY																						

(LUZON/VISAYAS/MINDANAO) SYSTEM OPERATION
DAILY OPERATIONS HIGHLIGHTS
(DATE)

	GEOTHERMAL				HYDRO				BIOMASS				SOLAR				WIND			
POWER PLANTS	CAP (MW) RATED	AVAIL	PLANNED GENERATION (MWh)	POWER PLANTS	CAP (MW) RATED	AVAIL	PLANNED GENERATION (MWh)	POWER PLANTS	CAP (MW) RATED	AVAIL	PLANNED GENERATION (MWh)	POWER PLANTS	CAP (MW) RATED	AVAIL	PLANNED GENERATION (MWh)	POWER PLANTS	CAP (MW) RATED	AVAIL	PLANNED GENERATION (MWh)
EMBEDDED (EM)				**EMBEDDED (EM)**				**EMBEDDED (EM)**				**EMBEDDED (EM)**				**EMBEDDED (EM)**			
GPP 1	0	0	0	HPP 1	0	0	0	BPP 1	0	0	0	SPP 1	0	0	0	WPP 1	0	0	0
GPP 2	0	0	0	HPP 2	0	0	0	BPP 2	0	0	0	SPP 2	0	0	0	WPP 2	0	0	0
EM	0	0	0	EM	0	0	0	EM	0	0	0	EM	0	0	0	EM	0	0	0
GRID CONNECTED (GC)				**GRID CONNECTED (GC)**				**GRID CONNECTED (GC)**				**GRID CONNECTED (GC)**				**GRID CONNECTED (GC)**			
GPP 1	0	0	0	HPP 1	0	0	0	BPP 1	0	0	0	SPP 1	0	0	0	WPP 1	0	0	0
GPP 2	0	0	0	HPP 2	0	0	0	BPP 2	0	0	0	SPP 2	0	0	0	WPP 2	0	0	0
GC	0	0	0	GC	0	0	0	GC	0	0	0	GC	0	0	0	GC	0	0	0
TOTAL	0	0	0	**TOTAL**	0	0	0	**TOTAL**	0	0	0	**TOTAL**	0	0	0	**TOTAL**	0	0	0

TOTAL RATED CAPACITY(MW): ____   TOTAL AVAILABLE CAPACITY(MW): _____   TOTAL GENERATION CAPACITY(MWh): _____

b. Plant Outage

DEPARTMENT OF ENERGY

(LUZON/VISAYAS/MINDANAO) SYSTEM OPERATION
DAILY OPERATIONS HIGHLIGHT
(DATE)

TRANSMISSION LINE OUTAGE

LINES	DATE OUT	DATE IN	REMARKS	OUTAGE CLASS

3. **Daily Operations Report Template (to be developed as a web form)**

a. **Generation**

	GEOTHERMAL					HYDRO					BIOMASS					SOLAR					WIND			
	CAP (MW)		ACTUAL GENERATION (MWh)			CAP (MW)		ACTUAL GENERATION (MWh)			CAP (MW)		ACTUAL GENERATION (MWh)			CAP (MW)		ACTUAL GENERATION (MWh)			CAP (MW)		ACTUAL GENERATION (MWh)
POWER PLANTS	RATED	ACTL		POWER PLANTS	RATED	ACTL		POWER PLANTS	RATED	ACTL		POWER PLANTS	RATED	ACTL		POWER PLANTS	RATED	ACTL		POWER PLANTS	RATED	ACTL	

DEPARTMENT OF ENERGY

(LUZON/VISAYAS/MINDANAO) SYSTEM OPERATION

DAILY OPERATIONS REPORT

(DATE)

GEOTHERMAL			HYDRO				BIOMASS				SOLAR				WIND			
EMBEDDED (EM)			EMBEDDED (EM)				EMBEDDED (EM)				EMBEDDED (EM)				EMBEDDED (EM)			
GPP 1	0	0	0	HPP 1	0	0	0	BPP 1	0	0	0	SPP 1	0	0	0	WPP 1	0	0	0
GPP 2	0	0	0	HPP 2	0	0	0	BPP 2	0	0	0	SPP 2	0	0	0	WPP 2	0	0	0
EM	0	0	0	EM	0	0	0	EM	0	0	0	EM	0	0	0	EM	0	0	0
GRID CONNECTED (GC)			GRID CONNECTED (GC)				GRID CONNECTED (GC)				GRID CONNECTED (GC)				GRID CONNECTED (GC)			
GPP 1	0	0	0	HPP 1	0	0	0	BPP 1	0	0	0	SPP 1	0	0	0	WPP 1	0	0	0
GPP 2	0	0	0	HPP 2	0	0	0	BPP 2	0	0	0	SPP 2	0	0	0	WPP 2	0	0	0
GC	0	0	0	GC	0	0	0	GC	0	0	0	GC	0	0	0	GC	0	0	0
TOTAL	0	0	0	TOTAL	0	0	0	TOTAL	0	0	0	TOTAL	0	0	0	TOTAL	0	0	0

TOTAL RATED CAPACITY(MW): _____ TOTAL AVAILABLE CAPACITY(MW): _____ TOTAL GENERATION CAPACITY(MWh): _____

b. **Plant Outage**

DEPARTMENT OF ENERGY

(LUZON/VISAYAS/MINDANAO) SYSTEM OPERATION

DAILY OPERATIONS REPORT

(DATE)

PLANT OUTAGE

PLANTS	DATE OUT	DATE IN	REMARKS	TOTAL OUTAGE (DAYS)
FORCED				
PP 1				
PP 2				
PLANNED				
PP 1				
PP 2				
DEACTIVATED				
PP 1				
PP 2				
RESERVE SHUTDOWN				
PP 1				

Page 1

Page 3

4. Sample Daily Operations Highlights of NGCP (Reference only, not in scope)

LUZON SYSTEM OPERATIONS
DAILY OPERATIONS HIGHLIGHTS
Saturday: May 09, 2020

GEOTHERMAL (GEOT)

PLANTS	RATED	AVAIL	PLNDGEN (MWh)
EMBEDDED (EM)			
MAI	20.0	19.0	456
MAI2	12.0	11.0	264
MAIBARARA	32.0	30.0	720
EM	32.0	30.0	720
GRID CONNECTED (GC)			
BM 1	60.0	0.0	0
BM 2	60.0	60.0	0
BM 3	20.0	20.0	0
BM 4	20.0	0.0	1,920
BACMAN	160.0	80.0	1,920
LUZON-LEYTE	0.0	0.0	0
MB 1	63.2	41.0	0
MB 2	63.2	40.0	0
MB 3	63.2	40.0	0
MB 4	63.2	39.0	0
MB 5	55.0	0.0	0
MB 6	55.0	0.0	0
MB D	40.0	0.0	0
MB E	40.0	20.0	4,344
MAKBAN	442.8	180.0	4,344
MB O	16.0	2.0	48
MAKBAN ORM.	16.0	2.0	48
TW 1	60.0	0.0	0

THERMAL (THER)

PLANTS	RATED	AVAIL	PLNDGEN (MWh)
COAL			
EMBEDDED (EM)			
CALUMPI	26.0	0.0	0
PETRON 1	35.0	4.0	0
PETRON 2	35.0	11.0	0
PETRON 3	35.0	0.0	0
PETRON 4	35.0	0.0	0
PETRON	140.0	15.0	0
EM	166.0	15.0	0
GRID CONNECTED (GC)			
ANDA	82.0	0.0	0
ASIA PACIFIC E	52.0	0.0	0
BCF 1	300.0	200.0	4,320
BCF 2	300.0	300.0	7,200
BATANGAS CO.	600.0	500.0	11,520
GNP 1	325.8	316.0	7,584
GNP 2	325.8	316.0	7,584
GNPOWER	651.6	632.0	15,168
MSNLC 1	315.0	0.0	0
MSNLC 2	344.0	344.0	6,623
MSNLC 3	335.0	0.0	0
MASINLOC	994.0	344.0	6,623
PBL 1	382.0	0.0	0
PBL 2	382.0	382.0	7,647

HYDRO (HYDR)

PLANTS	RATED	AVAIL	PLNDGEN (MWh)
EMBEDDED (EM)			
BOTOCAN	21.6	0.0	0
MARIS 1	3.8	1.0	0
MARIS 2	3.8	0.0	24
MARIS	7.6	1.0	24
SMITHBELL	1.8	0.0	0
EM	31.0	1.0	24
GRID CONNECTED (GC)			
AMBUKLAO	105.0	105.0	100
AMPOHAW	12.5	1.0	24
ANG (A)	46.0	9.0	264
ANG (M)	200.0	84.0	587
ANGAT	246.0	93.0	851
BAKN SINIPSIP	12.4	3.0	0
BAK 1	35.0	4.0	48
BAK 2	35.0	2.0	0
BAKUN HYDRO	70.0	6.0	48
BINENG	19.2	1.0	24
BINGA	131.0	137.0	96
CALIRAYA	24.0	0.0	0
CASEC 1	70.0	0.0	0
CASEC 2	70.0	0.0	0
CASECNAN	140.0	0.0	0
HEDCOR	21.0	0.0	0

GAS

PLANTS	RATED	AVAIL	PLNDGEN (MWh)
GRID CONNECTED (GC)			
AVION 1	50.0	44.0	0
AVION 2	50.0	43.0	0
AVION	100.0	87.0	0
ILIJAN A1	204.0	190.0	10,200
ILIJAN A2	204.0	190.0	0
ILIJAN A3	204.0	220.0	0
ILIJAN A	612.0	600.0	10,200
ILIJAN B1	204.0	190.0	10,200
ILIJAN B2	204.0	190.0	0
ILIJAN B3	204.0	220.0	0
ILIJAN B	612.0	600.0	10,200
LMY A 1	70.0	60.0	0
LMY A2	70.0	60.0	0
LMY A 3	70.0	60.0	0
LMY A 4	100.0	90.0	0
LIMAY A	310.0	270.0	0
LMY B 5	70.0	60.0	0
LMY B 6	70.0	60.0	0
LMY B 7	70.0	60.0	0
LMY B 8	100.0	90.0	0
LIMAY B	310.0	270.0	0
SAN GABRIEL	414.0	415.0	7,187
SN LO 1	265.0	265.0	5,954
SN LO 2	265.0	262.0	6,046

RENEWABLE (RE)

PLANTS	RATED	AVAIL	PLNDGEN (MWh)
BIOMASS			
EMBEDDED (EM)			
ACNPC	3.2	1.0	0
CADPI	25.0	0.0	0
MONTALBAN	4.0	2.0	41
PANGEA	0.8	1.0	24
EM	33.0	4.0	65
GRID CONNECTED (GC)			
I-POWER	10.8	9.0	216
I-POWER 2	10.8	11.0	0
I POWER SAN .	21.6	20.0	216
BBEC	5.0	4.0	96
BT2020COGEN	13.0	11.0	264
CBEC	13.5	14.0	330
CBEC	13.5	14.0	330
CLEANGREEN	10.8	0.0	48
GIFTC	12.0	17.0	264
GRASSGOLD	10.8	11.0	240
GREEN FUTUR	19.8	0.0	0
IBEC	20.0	18.0	0
VSGRIP	5.4	0.0	48
GC	131.9	95.0	1,506
BIOMASS	164.9	99.0	1,571
SOLAR			

5. Summary of Renewable Energy Projects (Count of Awarded and Pending Project will be coming from EVOSS; to be displayed in the System Dashboard)

AWARDED PROJECTS UNDER RE LAW

RESOURCES	AWARDED PROJECTS		POTENTIAL CAPACITY MW		INSTALLED CAPACITY MW	
	Commercial	Own-Use	Commercial	Own-Use	Commercial	Own-Use
Hydro Power	444		13,467.53		973.54	
Ocean Energy	6		26.00			
Geothermal	41		575.00		1,906.19	
Wind	64	1	2,381.50		426.90	0.006
Solar	216	16	6,882.92	4.286	905.18	3.218
Biomass	55	24	346.68	16.77	407.15	128.16
Sub-Total	826	41	23,679.63	21.056	4,618.96	131.38
TOTAL	867		23,700.69		4,750.34	

NOTE:

* - excluding 55 installed projects with 3,050.47MW capacity under RA 7156, CA 120, PD 1645, RA 3601 & Own-Use

** - excluding 1 potential project with 20MW capacity under PD 1442.

PENDING APPLICATIONS UNDER RE LAW

RESOURCES	AWARDED PROJECTS		POTENTIAL CAPACITY MW		INSTALLED CAPACITY MW	
	Commercial	Own-Use	Commercial	Own-Use	Commercial	Own-Use
Hydro Power	93		2,307.35			
Ocean Energy						
Geothermal	4		60.00			
Wind	16		-			
Solar	83		1,445.50			
Biomass	10		96.81			
Sub-Total	206	-	3,909.66	-	-	-
TOTAL	206		3,909.66		0.00	

6. Sample Awarded Biomass Project Report

AWARDED BIOMASS PROJECTS as of December 31, 2018

ISLAND / GRID	REGION	PROVINCE	CITY / MUNICIPALITY	PROJECT NAME	COMPANY NAME	STATUS	POTENTIAL CAPACITY (MW)	INSTALLED CAPACITY (MW)
Luzon	I	La Union	Rosario	1 MW Pepsi Biomass Power Plant Project	Sure PEP, Inc.	1. On-going construction; 2. Posting of PB: N/A; 3. Compliant with reportorial obligations 4. Compliant to RESHERR	0.00	1.00
		Ilocos Sur	Santa	10 MW Biomass Power Plant Project	SATRAP Power Corporation	1. On-going rehabilitaion works; 2. Compliant to posting of PB for Year 2; 3. Compliant with reportorial obligations; 4. Compliant to RESHERR	10.00	0.00
	II	Isabela	Alicia	3.6 MW Biomass Gasification Power Plant	Lucky PPH International, Inc.	Stopped operations in 23 Nov. 2016 due to inefficiency of the plant; Issued with showcause letter dated 04 Oct. 2017 and received on 10	0.00	3.60
				20 MW Biomass Power Plant	Isabela Biomass Energy Corporation	1. Operational; Awarded with COE-FIT of 18 MW; 2. Posting of PB: N/A; 3. Compliant with reportorial obligations; 4. Compliant to RESHERR	0.00	20.00
			San Mariano	19 MW Biomass Cogeneration Plant	Green Future Innovations Inc.	1. Operational; Awarded with COE-FIT of 14 MW capacity; 2. Posting of PB: N/A; 3. Compliant with reportorial obligations;	0.00	19.00
			Aurora	5 MW Biomass Power Plant Project	Isabela La Suerte Rice Mill Corporation	1. Completed construction; 2. Compliant to posting of PB; 3. Compliant with reportorial obligations; 4. Compliant to RESHERR	0.00	5.00
			Burgos	15 MW Biomass Power Plant Project	Cagayan Biomass Energy Corporation	1. Newly awarded BREOC September 2018; 2. 40% completed construction; 3. For validation of milestone activities; 4. Compliant to posting of PB Year 1	15.00	0.00
	III	Bataan	Samal	12.5 MW Biomass Cogeneration Plant	Bataan 2020 Inc.	1. Operational; Awarded with COE-FIT of 11.1MW capacity; 2. Posting of PB: N/A; 3. Compliant with reportorial obligations; 4. Compliant to RESHERR	0.00	12.50

7. Cost of Investments and Green Jobs Summary

Renewable Energy Cost of Investment: Php185.090 Billion

2009-2018	BIOMASS	SOLAR	WIND	HYDROPOWER	GEOTHERMAL	TOTAL
Additional Capacity	435.11 MW	928.58 MW	393.91 MW	213.04 MW	72.00 MW	2,067.23 MW
Cost of Investment (in Billion Pesos)	21.678	77.405	49.720	29.758	6.529	185.090

Note: Approximately US$3.7 Billion

Jobs Created: 102,090 Green Jobs

9,497,272.33 t- CO2 Reduction (2009-2017)

8. Feed-in-Tariff Report

FEED-IN-TARIFF (FIT) SYSTEM

RESOURCE	INSTALLATION TARGET	ERC APPROVED FIT RATES	WITH CERTIFICATE OF ENDORSEMENT TO ERC		INSTALLATION TARGET BALANCE
	Capacity (MW)	(PhP / kWh)	No. of Projects	Capacity (MW)	Capacity (MW)
HYDRO	250	5.90	5	34.60	157.96
		5.8705***	1	8.50	
		-	2	48.936	
WIND	200	8.53	3	249.90	6.10
	200*	7.40**	3	144.00	
SOLAR	50	9.68	6	108.90	-
	450*	8.69**	17	417.05	
BIOMASS	250	6.63	15	121.561	98.175
		6.5969***	3	12.864	
		-	5	17.4	
OCEAN	10	Deferred	-	-	-
TOTAL	1,410.00		54	1,160.711	262.235

* - Additional installation targets
** - FIT rates for the respective additional installation targets (W-ERCRes14,s2015; S-ERCRes6,s2015)
*** - Degressed FIT rates (H&B-ERCRes1,2017)
**** - Reckoning date is January 2015 (Deadline: December 2017)

FIT System for Biomass extended until end-2019

FIT System for ROR Hydro extended until full subscription

Department of Energy

9. Additional Capacity Report

Renewable Energy Additional Capacity Installations under RA 9513 (as of October 2019)

RESOURCES	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	October 2019	Own-Use	Net Metering	Total
	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW
Biomass	40.93	37.15	19.00	19.00	0.876	12.00	124.50	40.80	18.12	41.74	60.58	120.00		534.70
Geothermal	-	-	-	-	-	50.00	10.00			12.00				72.00
Solar	-	-	-	-	-	22.00	142.47	735.72	25.20	3.20	21.00	7.03	23.77	980.38
Hydro Power	10.40	57.30	4.20	11.80		13.65	17.82	10.45	8.50	78.92	2.19			215.23
Ocean Energy	-	-	-	-	-	-								-
Wind	-	-	-	-	-	303.90	90.00							393.90
TOTAL	51.33	94.45	23.20	30.80	0.88	401.55	384.79	786.97	51.82	135.86	83.77	127.03	23.77	2,196.20

10. Awarded RE Service/Operating Contracts and Certificate of Registrations for Own Use

Awarded Renewable Energy Service/Operating Contracts (RESCs) and Certificate of Registrations (CORs) for Own-Use

Resource	2009	2010	2011	2012	2013	2014	2015	2016	2017	TOTAL NO. OF RESC/COR as of 2017
	# of SCs	# of SCs	# of SCs	# of SCs	# of SCs	# of SCs	# of SCs	# of SCs	# of SCs	
Biomass	3	22	15	7	21	8	11	11	11	109
Geothermal	7	14	6	8	9	1	2	2	1	50
Solar	-	1	7	27	30	40	73	48	64	290
Hydropower	57	67	9	56	101	187	45	65	51	638
Ocean	2	1	-	-	4	1	2	-	-	10
Wind	24	21	8	6	6	19	5	6	12	107
Total	**93**	**126**	**45**	**104**	**171**	**256**	**138**	**132**	**139**	**1,204**

11. List of existing power plant in Mindanao

PLANT TYPE	TOTAL POWER PLANTS
Coal Thermal	13
Diesel	31
Natural Gas	0
Geothermal	1
Hydro	17
Solar	5
Wind	0
Biomass	2
Battery Storage	0
TOTAL	**69**

12. Geothermal Power Performance Summary

Geothermal Power Type	Date	Geothermal Power Performance
GROSS GENERATION, MWH	Jan-20	687,509.17
GROSS GENERATION, MWH	Feb-20	806,012.51
GROSS GENERATION, MWH	Mar-20	714796.6488
GROSS GENERATION, MWH	Apr-20	891784.7504
GROSS GENERATION, MWH	May-20	877274.11
GROSS GENERATION, MWH	Jun-20	894378.1114
GROSS GENERATION, MWH	Jul-20	871628.4436
GROSS GENERATION, MWH	Aug-20	915244.0877
GROSS GENERATION, MWH	Sep-20	859137.709
GROSS GENERATION, MWH	Oct-20	845822.2966
GROSS GENERATION, MWH	Nov-20	896890.2079
GROSS GENERATION, MWH	Dec-20	863364.2151
POWER GENERATION, KTOE	Jan-20	7995733.808
POWER GENERATION, KTOE	Feb-20	9373927.949
POWER GENERATION, KTOE	Mar-20	8313087.229
POWER GENERATION, KTOE	Apr-20	10371459.4
POWER GENERATION, KTOE	May-20	10202700.6
POWER GENERATION, KTOE	Jun-20	10401620.19
POWER GENERATION, KTOE	Jul-20	10137041.49
POWER GENERATION, KTOE	Aug-20	10644291.56
POWER GENERATION, KTOE	Sep-20	9991774.203
POWER GENERATION, KTOE	Oct-20	9836915.916
POWER GENERATION, KTOE	Nov-20	10430835.88
POWER GENERATION, KTOE	Dec-20	10040928.48

13. Sample existing Database Format (to be developed as a web form – main system process)

FEED-IN TARRIFF MONITORING BOARD											
PROJECTS UNDER FIT SYSTEM											
DATE OF DECLARATION OF COMMERCIALIT▼	DATE OF CERTIFICATE OF CONFIRMATION OF COMMERCIALITY ▼	DATE OF TESTING & COMMISSIONIN ▼	DATE OF TARGET COMMERCIAL OPERATION ▼	DATE OF COMMERCIAL OPERATION ▼	CERTIFICATE OF ENDORSEMENT (COE) NO. ▼	DATE SIGNED OF COE ▼	CAPACITY (MW) ▼	CAPACITY FACTOR (▼	PROJECTED ANNUAL ENERGY PRODUCTION (GWH) ▼	ACTUAL ANNUAL ENERGY PRODUCTION (GWH) ▼	STATUS ▼

14. RPS Form

Renewable Portfolio Standards (RPS) Requirement and Compliance Form

A. General Information

1. Name of Mandated Participant in Full	On-Grid Mandated Participant	
2. Classification of Mandated Participant	Distribution Utilitiy (DU)	
- Others (Please specify)		
3. Location of Mandated Participant	On-Grid	
3a. Business Address in Full:	LVM Area	
3b. Address of Plant in Full (If applicable):		
4. Contact Details		
4a. Focal Person	RPS Focal Person	
4b. Designation	Official Designation/Section	
4c. E-mail Address/Telephone Number	Working Email Address	Cellphone/Office Number
5. Percentage of Plants under FIT (K_0)	3.34%	

B. RPS Requirement Computation		Year 0 2018	Transition 2019	Year 1 2020	Year 2 2021	Year 3 2022	Year 4 2023	Year 5 2024	Year 6 2025	Year 7 2026	Year 8 2027	Year 9 2028	Year 10 2029
6. Net Electricity Sales (ES_{n-1})	(MWh)	419,075	432,418	516,211	575,807	612,304	660,935	688,347	709,428	726,969	746,553	767,275	805,454
7. Annual Incremental RE Percentage (K_m)	(%)	-	-	1.00%	2.00%	3.00%	4.00%	5.00%	6.00%	7.00%	8.00%	9.00%	10.00%
8. RPS Requirement (RPS_n)	(MWh)	-	-	18,194	27,573	36,636	45,093	55,292	64,482	73,565	82,669	92,375	102,625

C. RPS Compliance Mechanism		Year 0 2018	Transition 2019	Year 1 2020	Year 2 2021	Year 3 2022	Year 4 2023	Year 5 2024	Year 6 2025	Year 7 2026	Year 8 2027	Year 9 2028	Year 10 2029
9. PSA from Eligible RE Plants (PSA)	(REC)	-	-	-	-	-	-	-	-	-	-	-	-
10. Net-Metering ≤ 100 kW (NM)	(REC)	98	96	96	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
11. RE Facility for Own-Use (RE-OU)	(REC)	-	-	-	-	-	-	-	-	-	-	-	-
12. Green Energy Option Program (GEOP)	(REC)	-	-	-	-	-	-	-	-	-	-	-	-
13. Purchased from the RE Market (REM)	(REC)	-	-	-	-	-	-	-	-	-	-	-	-
14. FIT Allocation (FIT)	(REC)	13,999	16,728	22,626	23,746	23,740	24,124	23,636	22,916	22,096	21,349	20,644	20,389
15. Total Eligible RECs	(REC)	14,097	16,824	22,722	25,746	25,740	26,124	25,636	24,916	24,096	23,349	22,644	22,389