



GOVERNMENT OF ASSAM

FLOOD AND RIVER EROSION MANAGEMENT AGENCY OF ASSAM, (FREMAA)

Address: 4th floor, Assam Water Centre, Basistha Chariali, NH-27, Guwahati-29.

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FREMAA(P)/TECH/WB/74/2023/T-34

Date: 03/11/2023

REQUEST FOR QUOTATION (RFQ)

Flood and River Erosion Management Agency of Assam (FREMAA) (hereinafter referred to as Employer), 4th Floor, Assam Water Centre, Basistha Chariali NH 27, Guwahati-29, invites quotations from bidders for services listed below. The interested bidders (consultants/firms/agencies) may submit their quotations addressed to the Chief Executive Officer, FREMAA at the office on or before 21/11/2023 up to 02:00 PM. Any queries relating to the RFQ and its terms and conditions, should be sent to the issuing authority in writing by email or letter on or before 10/11/2023. The quotations will be opened on 24/11/2023 by 03:00 PM.

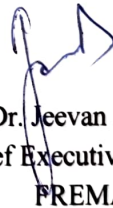
Sl. No	Description	Duration (Days)
1	Hiring of Agency for Energy Audit of Assam Water Centre (AWC)	30

Bidders are requested to go through the following documents before submission of quotation:

- (i) Annexure A : Terms & Conditions
- (ii) Annexure B1 : Letter of Quotation– Technical Part
- (iii) Annexure B2 : Price Schedule
- (iv) Annexure C : Terms of Reference

Detailed RFQ document along with other terms and conditions are attached as Annexure A, B and C is available in the official website of the Employer; www.fremaa.assam.gov.in

Any Addendum/Corrigendum for this RFQ will be uploaded in the above cited website of Employer only.


 (Dr. Jeevan B, IAS)
 Chief Executive Officer,
 FREMAA

Memo No: FREMAA(P)/TECH/WB/74/2023/T-34

Date: 03/11/2023

Copy to:

1. TO(C)-FREMAA, for publishing in the Employer's official website.


 Chief Executive Officer,
 FREMAA

Terms & Condition

1. Eligibility Criteria

- a. The bidder should have carried out **similar nature** of work of in any Central/State Govt Department /Govt Agencies /Govt. Institutions of Assam or India/ Private Agencies /PSU /Companies /Apartments / Commercial buildings.

Documentary Evidence in the form of Successful completion Certificate issued by the Client/ Payment receipt along with Work Order or Contract Agreement has to be submitted.

(Similar Nature means: Energy Audit of buildings housing major electrical equipments like UPS Systems, transformer, lifts, HVAC System, large Display Units, Solar System, Networking servers etc.)

- b. The bidder should have a valid GST Registration.
c. The bidder should be a BEE accredited Energy Auditor.

Supporting documents to be provided for 1 (a) to 1(c)

2. The bidder with the lowest quoted price (**excluding GST**) as per Annexure B fulfilling the above criterions at Sl. No. 1 will be eligible for award of contract.
3. **All the pages of the Quotation have to be signed by the authorized representative of the bidder.**
4. The bidders are requested to visit the Employer's office to inspect the equipments before submitting their quotations.
5. Bidder should fill up rates both in figures and words in the Financial Part.
6. The applicable tax should be shown separately.
7. The Employer is not bound to accept the lowest bidder and reserves the right to reject any or all the Quotations without assigning any reason thereof.
8. The selected bidder shall be bound to maintain confidentiality of the findings of the energy audit and should not disclose under any conditions.
9. The prices quoted by the lowest bidder shall be firm and will not be subjected to adjustment/escalation during the entire duration of the contract.
10. 100% payment shall be made after the successful completion of the assignment along with submission of satisfactory detailed report and upon issuance of successful completion certificate by the Employer. Invoice to be raised accordingly.

LETTER OF QUOTATION– TECHNICAL PART

(This technical part must be submitted using official letterhead of the bidder)

RFQ No. FREMAA(P)/TECH/WB/74/2023

Date:

To,
The Chief Executive Officer
FREMAA, 4th Floor, Assam Water Centre
Basistha, Near NH 27, Guwahati 781029

Sub: Request for Quotation (RFQ) for “Hiring of Agency for Energy Audit of Assam Water Centre (AWC)”

Sir,
I/We, the undersigned, hereby submit the technical part of our Quotation. In submitting our Technical Part, we make the following additional declarations:

- (a) Our quotation shall be valid for the period of 60 days from the deadline fixed for the quotation submission;
- (b) I/we have thoroughly read and understood all the terms and conditions as contained in the RFQ and agree to abide by them.

Yours faithfully,

(Authorized Signature)

Name & Title of Signatory In the capacity of [insert legal capacity of person signing the Letter of Quotation]

Name of the Bidder

Address

Telephone No.

Email id.

Dated on day of _ , [insert date of signing]

Price Schedule

Sl. No.	Description of Works	Rate (in Rs.)	Unit	Amount (in Rs.)
1	Professional fees for conducting Energy Audit of Assam Water Centre (AWC)		Job	
GST (As applicable)				
Total Amount (Rs.)				
(Total Amount in Rs. including GST in Words)				

Payment Terms & Conditions

1. We confirm that the quoted price is inclusive of all statutory GST, duties, logistics, printing and any other charges for completion of the assignment at Assam Water Centre premises.
2. We confirm that we will abide by all the terms & conditions of tender, scope of work and we do not have any counter conditions.
3. We confirm that the assignment will be considered completed after satisfactory acceptance of the Client.

On behalf of the Firm/Agency:

Name of the Authorised Person:

Designation:

Signature:

TERMS OF REFERENCE

1. Introduction

1.1. About the Procuring Entity

Flood and River Erosion Management Agency of Assam (FREMAA), is a Special Purpose Vehicle under the Water Resources Department of the Government of Assam located at Assam Water Centre (AWC), Basistha Chariali, NH-27, Guwahati-29. The agency is responsible for the implementation of flood mitigation activities across the state of Assam.

The AWC building accommodates several important offices, including the Chief Engineer of the Water Resources Department, FREMAA, Dedicated EAP Wing-WRD, PMTC Office, and Dedicated HIU Unit, which plays a vital role in coordinating and managing flood mitigation efforts in Assam.

Assam Water Centre, a green building, is being executed in accordance with GRIHA (Green Rating for Integrated Habitat Assessment). The building is situated on a plot of land spanning approximately 11 bighas. The building area is 21,927 sq. feet, and the open area is around 136,473 sq. feet. The open area of the plot includes a rainwater harvesting tank and a fire fighting underground tank with a capacity of 100,000 litres. Additionally, there are two courtyards of areas 3,170 sq. feet and 853 sq. feet amidst the building area.

The total floor area of the building is approximately 76,700 sq. feet.

The utilization of floors is as follows:

Ground Floor	1 st Floor	2 nd Floor	3 rd Floor	4 th Floor	5 th Floor
208-seater Auditorium Hall	2 Conference Halls	2 VIP Suites (to be converted to Office space)	Water Resource Office	CEO, FREMAA Office	Chief Engineer, Water Resource Office
UPS Room	Lobby Area	PMTC Office			
Electrical Room	HIU Office	Dashboard Office Area			
		Banquet Hall			

The building incorporates various electrical equipment and installations including but not limited to:

- a. 200 KVA online UPS system.
- b. 1000 KVA indoor transformer.
- c. 3-phase electrical connection.
- d. Load Distribution panels at the ground floor.
- e. 2 KONE make lifts.
- f. Diesel generator and jockey pump related to fire fighting.

- g. Boring pump, overhead tank pump, rainwater harvesting tank pump, fountain pump.
- h. Total 366 HP outdoor units related to the HVAC system of Assam Water Centre.
- i. Indoor lighting and luminaries, outdoor pole lights, garden and courtyard lights.
- j. Various display and TV units at the auditorium and conference halls.
- k. Geysers in washrooms.
- l. 60 KVA solar system on the terrace.
- m. Various IT-related equipment.
- n. Split AC units (1.5-ton capacity) on floors.
- o. Networking and server units.

1.2. About the Project

As the AWC building accommodates several important offices as mentioned above, it requires constant supply of electricity for functioning of various units like Auditorium, Conference rooms, office chambers etc., it is crucial to assess the energy efficiency of the AWC building and its systems to identify potential areas for improvement and energy savings. An energy efficiency audit is necessary to evaluate the current energy consumption patterns, identify energy wastage, and propose cost-effective measures to enhance energy performance.

1.3. About The Assignment

In order to assess the energy efficiency of Assam Water Centre (AWC), an energy audit is needed to identify usage patterns and recommend the most efficient management of energy for the identified scope of works. The energy audit will help identify, quantify and provide reports on opportunities to improve energy efficiency and the performance of appliances and will assess the energy flows into AWC, its various components or system and identify possible ways of reducing the energy use whilst maintaining and improving human comfort, health and safety.

2. Objectives of the Assignment

The primary objectives of the assignment are as follows:

- 2.1 Assess Current Energy Consumption: The primary objective of the energy efficiency audit is to assess the current energy consumption patterns of the Assam Water Centre (AWC) located at Basistha Chariali, Guwahati, Assam. This includes analyzing the energy usage of the building, its systems, and the offices it accommodates.
- 2.2 Optimize Energy Systems: The objective is to evaluate the effectiveness and efficiency of existing energy systems within the AWC building and propose recommendations for optimizing their performance. This may include suggesting upgrades, retrofitting options, or changes in control strategies to enhance energy efficiency.
- 2.3 Reduce Operational Costs: The energy efficiency audit aims to identify measures that can lead to cost savings in the operation and maintenance of the AWC building. By identifying energy waste and implementing energy-saving strategies, the objective is to reduce energy consumption and subsequently lower operational expenses.
- 2.4 Provide Recommendations and Action Plan: Based on the findings of the energy efficiency audit, the objective is to provide a comprehensive set of recommendations and an actionable plan for implementing energy-saving

measures. This includes prioritizing recommendations based on their potential impact, feasibility, and cost-effectiveness.

- 2.5 Support Sustainable Development Goals: The energy efficiency audit aims to align with the sustainable development goals of reducing energy consumption, minimizing carbon footprint, and promoting sustainable practices. By improving energy efficiency, the objective is to contribute to environmental sustainability and climate change mitigation.
- 2.6 Ensure Compliance and Best Practices: The energy efficiency audit will ensure compliance with relevant energy efficiency regulations, guidelines, and best practices. The objective is to align the AWC building with industry standards and promote a culture of energy conservation and sustainable operations.
- 2.7 Foster Awareness and Engagement: The audit seeks to promote awareness and engagement among building occupants and stakeholders regarding energy efficiency and conservation. The objective is to encourage behavioural changes, establish energy-saving practices, and foster a culture of sustainability within the AWC building.

3. Scope of the Assignment

3.1 Measurement of Electrical Load in Different Consumer Points:

- a. Identify and measure the electrical load at various consumer points within the Assam Water Centre building, including distribution panels, subpanels, and individual electrical equipment.
- b. Record voltage, current, power factor, and other relevant electrical parameters.
- c. Analyze the load profile and identify areas of high energy consumption or inefficient electrical equipment.

3.2 Measurement of Liquid Fuel Consumption:

- a. Measure and record the consumption of liquid fuels, such as diesel or petrol, used in generators, pumps, or other equipment.
- b. Evaluate the efficiency and fuel consumption rate of the equipment using liquid fuels.

3.3 Calculation of Total Energy Consumed by the Facilities:

- a. Calculate the total energy consumed by the Assam Water Centre building over a specified period.
- b. Include energy consumption from electrical sources, liquid fuels, and any other relevant energy sources.
- c. Analyze the energy consumption data to identify trends, patterns, and areas for potential energy savings.

3.4 Performance Measurement of the Air Conditioning System:

- a. Assess the performance and efficiency of the air conditioning system within the building.
- b. Measure parameters such as cooling capacity, power consumption, temperature differentials, airflow rates, and refrigerant properties.
- c. Identify any inefficiencies, malfunctions, or opportunities for optimization within the air conditioning system.

3.5 Performance Measurement of Solar Power:

- a. Evaluate the performance of the solar power system installed at the Assam Water Centre.
- b. Measure and record solar radiation levels, energy generation, and system efficiency.
- c. Assess the compatibility of the solar power system with the building's energy requirements and identify any improvements or modifications needed.

3.6 Power Factor Measurement:

- a. Measure the power factor of the electrical system at various points within the building.
- b. Identify any power factor correction requirements to improve the power quality and reduce energy losses.

3.7 Measurement of Harmonics and THD:

- a. Analyze the harmonics and total harmonic distortion (THD) levels in the electrical system.
- b. Measure and record harmonic currents and voltages.
- c. Assess the impact of harmonics on energy consumption, equipment performance, and power quality.

3.8 Performance Measurement of the Pumping System:

- a. Evaluate the performance and efficiency of the pumping system, including water pumps, fire-fighting pumps, and other relevant pumps.
- b. Measure parameters such as flow rates, pressure differentials, power consumption, and pump efficiency.
- c. Identify any opportunities for optimization, energy savings, or improvements in the pumping system.

3.9 Improvement of Energy Performance, if Applicable:

- a. Identify areas for energy performance improvement based on the findings from measurements and assessments.
- b. Provide recommendations for energy-saving measures, system upgrades, equipment replacements, or operational changes to enhance energy efficiency.

3.10 Calculation of the Total Energy Bill After Proposed Modifications:

- a. Estimate the potential energy savings and the resulting impact on the energy bill after implementing the recommended modifications.
- b. Calculate the cost savings and payback periods associated with the proposed energy-saving measures.

3.11 Collecting and Evaluating Energy Usage Information from Various Sources:

- a. Gather energy usage information from utility bills, equipment data sheets, maintenance records, and other relevant sources.

- b. Evaluate historical energy consumption patterns and identify areas of potential energy waste or inefficiency.

3.12 Calculating the Amount of Energy Conservation:

- a. Quantify the amount of energy conservation achievable through the implementation of recommended measures.
- b. Estimate the potential reduction in energy consumption and greenhouse gas emissions.

3.13 Lighting Systems Analysis:

- a. Analyze the lighting design, including fixture types, lamp technologies, and control systems, to assess their energy efficiency.
- b. Evaluate lighting levels and daylighting opportunities to optimize energy use while maintaining occupant comfort and safety.
- c. Recommend energy-efficient lighting alternatives, such as LED retrofits, occupancy sensors, and daylight harvesting strategies.

3.14 Appliances and Equipment Review:

- a. Evaluate the energy consumption and efficiency of office equipment, including computers, printers, copiers, and kitchen appliances.
- b. Identify energy-saving measures, such as equipment upgrades, power management settings, and efficient appliances, to reduce energy usage.

3.15 Energy Management Systems:

- a. Assess the effectiveness of existing energy management systems, including energy monitoring and control systems, to ensure accurate and reliable data collection.
- b. Propose improvements or upgrades to enhance the monitoring and control capabilities, allowing for better energy management and optimization.

3.16 Occupant Behaviour and Awareness:

- a. Assess occupant behaviour related to energy use, including energy-wasting habits and opportunities for behavioural changes.
- b. Recommend awareness campaigns, training programs, or occupant engagement initiatives to promote energy conservation and efficiency.

3.17 Building Controls and Automation:

- a. Evaluate the effectiveness of building automation systems (BAS) and control strategies to optimize energy consumption based on occupancy patterns and comfort requirements.
- b. Recommend improvements, including control system upgrades, scheduling optimization, and setback strategies, to enhance energy efficiency.

3.18 Measurement and Verification (M&V) Plan:

- a. Develop a plan for monitoring, measurement, and verification (M&V) of implemented energy efficiency measures to ensure their effectiveness and track energy savings.

3.19 Reporting and Recommendations:

- a. Provide a comprehensive report summarizing the findings of the energy efficiency audit, including prioritized recommendations, estimated energy and cost savings, implementation timelines, and responsible parties.

3.20 Stakeholder Engagement:

- a. Engage with stakeholders, including building occupants, facility managers, and relevant agencies, to ensure their participation, support, and understanding of the energy efficiency audit process and its objectives.

4. Methodology

4.1. Data Collection and Review:

- a. Gather relevant data on the Assam Water Centre building, including architectural plans, building specifications, energy bills, and maintenance records.
- b. Review historical energy consumption data to identify trends and patterns.

4.2. On-site Inspection and Assessment:

- a. Conduct a comprehensive on-site inspection of the Assam Water Centre building, including its envelope, HVAC systems, lighting systems, appliances, and equipment.
- b. Document the condition, operation, and performance of the building systems and equipment.
- c. Identify any visible signs of energy wastage, inefficiency, or maintenance issues.

4.3. Occupant Interviews and Surveys:

- a. Engage with building occupants, facility managers, and other stakeholders through interviews and surveys to understand their energy-related behaviors, concerns, and suggestions.
- b. Gather feedback on comfort levels, lighting preferences, equipment usage, and other energy-related aspects.

4.4. Energy Performance Analysis:

- a. Analyze the energy consumption data to establish baseline energy usage patterns and trends.
- b. Benchmark the Assam Water Centre building against similar buildings or industry standards to identify areas of improvement.
- c. Evaluate the performance of HVAC systems, lighting systems, Solar System, appliances, and equipment to identify energy-saving opportunities.
- d. Utilize energy modelling software, if applicable, to simulate energy performance and assess the impact of potential energy-saving measures.

4.5. Lighting System Analysis:

- a. Evaluate the lighting design, fixtures, lamp technologies, and control systems.
- b. Measure lighting levels and assess daylighting opportunities.
- c. Identify potential energy-saving measures, such as installing LED lighting, implementing lighting controls, or utilizing natural lighting.

4.6. Appliance and Equipment Assessment:

- a. Evaluate the energy consumption and efficiency of office equipment, including computers, printers, copiers, and kitchen appliances.
- b. Identify opportunities for energy-efficient equipment upgrades, power management settings, or replacement with energy-saving models.

4.7. Recommendations and Action Plan:

- a. Consolidate findings and develop a comprehensive set of recommendations, prioritized based on their potential impact, feasibility, and cost-effectiveness.
- b. Prepare an action plan outlining the recommended energy-saving measures, including implementation timelines, responsible parties, and estimated energy and cost savings.

4.8. Reporting and Presentation:

- a. Prepare a detailed report summarizing the energy efficiency audit findings, including the methodology, data analysis, assessment results, and recommendations.

- b. Present the findings and recommendations to stakeholders, providing explanations, clarifications, and answering questions as needed.

5. Methodology

5.1. Energy Efficiency Audit Report:

- a. A comprehensive report summarizing the findings of the energy efficiency audit.
- b. Overview of the audit objectives, methodology, and scope of work.
- c. Summary of data collection, analysis, and assessment results.
- d. Detailed description of energy-saving opportunities and recommendations.
- e. Prioritization of recommendations based on potential impact, feasibility, and cost-effectiveness.
- f. Estimated energy and cost savings associated with each recommendation.
- g. Action plan with implementation timelines, responsible parties, and resource requirements.
- h. Overview of measurement and verification (M&V) plan for tracking energy savings.

5.2. Building Envelope Assessment Report:

- a. Assessment findings related to the building envelope, including insulation levels, air leakage, and potential areas of energy loss.
- b. Recommendations for improving the thermal performance and integrity of the building envelope.

5.3. Lighting Systems Analysis Report:

- a. Assessment findings related to lighting systems, including fixture types, lamp technologies, and control systems.
- b. Recommendations for energy-efficient lighting alternatives, lighting controls, or daylight harvesting strategies.

5.4. Appliances and Equipment Assessment Report:

- a. Assessment findings related to energy consumption and efficiency of office equipment and appliances.
- b. Recommendations for energy-saving measures, equipment upgrades, power management settings, or replacements with energy-efficient models.

5.5. Measurement and Verification (M&V) Plan:

- a. Detailed plan outlining the approach for monitoring, measuring, and verifying the implemented energy efficiency measures.
- b. Description of data collection methods, monitoring equipment, and reporting protocols.

5.6. Presentation of Findings:

- a. Conduct a presentation to stakeholders, summarizing the key findings, recommendations, and potential benefits of the energy efficiency audit.
- b. Answer questions, provide explanations, and address any concerns or inquiries from stakeholders.
