



WRI INDIA

TERMS OF REFERENCE (ToR)
Individual Consultant / Firm Engagement

1. About the Organization and Project

WRI India, an independent knowledge organisation registered as the India Resources Trust (IRT), provides objective information and practical proposals to foster environmentally sound and socially equitable development. Know more: wri-india.org

Project:

Public healthcare facilities are increasingly dependent on reliable electricity to deliver quality healthcare services. The growing use of energy-intensive medical equipment, along with supporting infrastructure such as lighting, cooling, ventilation, and water heating systems, has significantly increased electricity demand across healthcare facilities. However, limited visibility into actual energy consumption patterns, equipment performance, electrical distribution systems, and operational practices often results in inefficient energy use, sub-optimal system design, and reduced power reliability.

To address these challenges, IRT is undertaking a detailed energy assessment of selected public healthcare facilities to establish a comprehensive understanding of facility-level and equipment-level energy consumption. The study will assess the performance of major medical and non-medical equipment, analyse electrical infrastructure and load distribution, identify measures for energy conservation and efficiency improvements, and recommend technically appropriate solutions for demand optimisation and renewable energy integration. The findings will support improved energy planning, enhanced operational efficiency, and the development of resilient, low-carbon healthcare facilities.

Accordingly, IRT seeks to engage a qualified and certified energy Assessment firm or energy Assessment Consultant to undertake comprehensive energy assessments, collect and analyse technical data, develop evidence-based recommendations, and prepare detailed technical reports and action plans in accordance with the scope of work outlined in this Terms of Reference.

2. Objectives of the Consultancy

- a. Undertake comprehensive energy assessments of the identified public healthcare facilities to assess existing energy consumption patterns, electrical infrastructure, power quality, and the energy performance of major medical and non-medical equipment, establishing a robust baseline for energy management.
- b. Identify and evaluate energy conservation and energy efficiency measures through detailed technical analysis, including equipment-level performance assessment, load profiling, critical and non-critical load segregation, Energy savings assessment, and recommendations for operational improvements, efficient technologies, and renewable energy integration where feasible.
- c. Develop actionable technical outputs including facility-wise energy assessment reports, actionable suggestions with technical specifications, guidance documents, and walkthrough assessment tools to

support evidence-based planning, future energy planning, and replication of energy assessments across healthcare facilities.

3. Scope of Work

A. Energy Assessment of healthcare facilities –

- (i) A detailed energy assessment will be conducted at each facility to understand existing energy consumption patterns across various building end-use applications such as lighting, air-conditioning, medical use, hot water, etc., at total of 18 healthcare facilities in Jharkhand and 20 in Rajasthan.

Facilities details are as below:

1. List of facilities for Jharkhand:

S.No	Name/Type of Health Facility	Location/District	Coordinates (Latitude, Longitude)
1	Sheikh Bhikhari Medical College	Hazaribagh	24.0161466°N, 85.3613559°E
2	Medinirai Medical College and Hospital	Palamu	24.03° N, 84.07° E
3	District Hospital	Ranchi	23.3692855° N, 85.3268312° E
4	District Hospital	Koderma	24.4748° N, 85.5967° E
5	District Hospital	Jamshedpur	22.758537° N, 86.201302° E
6	District Hospital	Dumka	24.26757° N, 87.25319° E
7	District Hospital	Ramgarh	23.612194° N, 85.571038° E
8	District Hospital	Simdega	22.6153° N, 84.5033° E
9	Sub District Hospital	Chakradharpur, W Singhbhum	22.6806° N, 85.6247° E
10	Sub District Hospital	Chandil, Saraikela Kharsawan	22.9576° N, 86.0517° E
11	Sub District Hospital	Bundu, Ranchi	23.196596° N, 85.5531° E
12	Sub District Hospital	Barhi, Hazaribagh	24.3016° N, 85.4093° E
13	CHC	Ichak, Hazaibagh	24.09° N, 85.4310° E
14	CHC	Markacho, Koderma	24.327222° N, 85.8344° E



S.No	Name/Type of Health Facility	Location/District	Coordinates (Latitude, Longitude)
15	CHC	Chainpur, Palamu	24.056228° N, 84.050244° E
16	CHC	Manoharpur, W Singhbhum	22.3736° N, 85.1923° E
17	PHC	Johna, Ranchi	23.3692° N, 85.606206° E
18	PHC	Barkakana, Ramgarh	23.6227° N, 85.4608° E

2. List of facilities in Rajasthan:

S.No.	Name/Type of Health Facility	Location/District	Coordinates (Latitude, Longitude)
1	Amrit Kaur District Hospital	Beawar	26.1015° N, 74.3207° E
2	District Hospital	Ajmer	26.4499° N, 74.6399° E
3	District Hospital Dausa	Dausa	26.8833° N, 76.3333° E
4	BDK Hospital / District Hospital	Jhunjhunu	28.1166° N, 75.3947° E
5	District Hospital Chittorgarh	Chittorgarh	24.8697° N, 74.6161° E
6	General Hospital Sawai Madhopur	Sawai Madhopur	25.9928° N, 76.3640° E
7	Nasirabad SDH	Ajmer	26.2970° N, 74.7369° E
8	Bandikui SDH	Dausa	27.0457° N, 76.5753° E
9	Chirawa SDH	Jhunjhunu	28.1886° N, 75.5788° E
10	Sujargarh SDH	Churu	27.6969° N, 74.4530° E
11	Kushalgarh SDH	Banswara	23.1990° N, 74.4521° E
12	Bhusawar CHC	Bharatpur	27.0389° N, 77.0485° E
13	Suwana CHC	Bhilwara	25.3532° N, 74.6998° E
14	Kalu CHC	Bikaner	28.3763° N, 73.8877° E
15	Dungla CHC	Chittorgarh	24.5126° N, 74.3414° E
16	Ratangarh CHC	Churu	28.0650° N, 74.5468° E
17	Abhaneri CHC	Dausa	27.0074° N, 76.6076° E
18	Sarana PHC	Ajmer	26.3034° N, 74.7338° E
19	Amarpura PHC	Jaipur	27.1121° N, 75.7198° E
20	Bahronda Kalan PHC	Sawai Madhopur	26.0461° N, 76.5385° E

- (ii) Participate in meetings (online) with IRT and relevant healthcare facilities when required.
- (iii) Conduct awareness sessions for administrative personnel and relevant staff at healthcare facilities on energy conservation practices and the efficient use of electricity, based on the findings of the energy assessments.
- (iv) Intimate IRT before the assessment, on the formats/documents that will be used for the assessment for the selected healthcare facilities. The assessment will focus on a total of 18 healthcare facilities in Jharkhand and 20 in Rajasthan; any changes in these locations will be communicated to the consultant at least one week before the start of the assessment. As part of the energy assessment, the consultant will also be required to take all electrical measurements of electrical assets/loads.
- (v) Perform the energy assessment by assessing current energy usage, energy performance of various appliances and equipment, power quality, identification of measures for energy efficiency improvement in energy savings and analyse the expected energy savings and payback period but not excluding the scope of energy assessment identified by Bureau of Energy Efficiency. Additionally, the assessment shall incorporate the measures of passive design features for energy savings.
- (vi) Document the assessment responses and data as per the template agreed, with feedback from IRT.
- (vii) Analyze the breakdown of peak energy demand and energy consumption across various end use energy applications within the hospital.
- (viii) Conduct primary and secondary data collection of all major electrical equipment and appliances, both medical and non-medical, being used in the hospital to establish a comprehensive baseline, with specific focus (wherever available) on **CT Machine, Ultrasound Machine, X-Ray Machine, ILR (Ice Lined Refrigerator), Autoclave, Radiant Warmer, Phototherapy Unit, Defibrillator, CPAP Machine, Suction Machine, Oxygen Concentrator, Ventilator, and PSA Plant**, and carry out **room-wise and system-wise bifurcation of loads into essential (critical clinical services) and non-essential loads**, documented through **excel-based load inventory and segregation sheets**, including equipment ratings, connectivity, and supply source.
- (ix) Determine the load profile and power signature of all major equipment and appliances, particularly the identified high-power medical equipment (under point viii), under different operating conditions including start-up, active operation, idle, and standby modes, and compare rated (nameplate) power with actual measured power consumption and standby power. **The Assessor shall undertake continuous 24-hour energy monitoring using appropriate data loggers and power quality analysers for the identified electrical feeders and selected major medical and non-medical equipment to capture representative operating profiles, load variations, demand patterns, operating cycles, and energy consumption under actual operating conditions.** The consultant shall further assess the simultaneity of essential and non-essential loads, evaluate power management practices between critical and non-critical loads, identify losses or anomalies attributable to wiring conditions or electrical distribution constraints, and establish baseline performance indicators and comparative energy metrics, including but not limited to:
 - a. kWh per scan (CT, X-ray, Ultrasound, etc.).
 - b. kWh per sterilization cycle (Autoclave).
 - c. kWh per patient or per bed served, where applicable.
 - d. kWh per litre of oxygen produced (PSA Plant).
 - e. kWh per hour of operation (Ventilator, Radiant Warmer, Phototherapy Unit, Oxygen



Concentrator, etc.).

- (x) Perform detailed energy analysis to calculate energy performance indicators at both the facility level and end-use application level, using measured power consumption and operating hours of the identified high-power medical equipment to develop accurate equipment-level and facility-level energy metrics.
- (xi) Identify energy conservation measures to reduce energy wastage with zero-cost or minimal-cost implications, with emphasis on operational practices related to the identified medical equipment, including switching-off protocols, reduction of unnecessary standby power, improved scheduling of high-load devices, and basic maintenance-related efficiency improvements.
- (xii) Identify energy efficiency interventions related to the identified high-power medical equipment and associated electrical systems, and document their technical implications, while retaining the categorization of measures into low-cost, medium-cost, and high-cost interventions as required for informed decision-making.
- (xiii) Assess the electrical distribution infrastructure, including cabling, wiring, earthing, and distribution panels, to identify inefficiencies such as voltage drops, I²R losses, poor insulation, undersized conductors, and faulty connections. Evaluate how these factors impact equipment performance, energy consumption, and system reliability, and recommend corrective measures for improvement.
- (xiv) For the proposed recommendations, develop technical specifications along with relevant vendor and manufacturer details for the proposed interventions related to the identified medical equipment and renewable energy supply.
- (xv) Calculate the energy demand and energy consumption under the most optimized operating scenario by incorporating measured equipment-level data, reduced standby losses, improved duty cycles, and **differentiated power supply strategies for essential and non-essential loads**, including recommendations for **load prioritisation, segregation, sequencing, and power management** across grid, backup, and renewable energy systems, and based on this analysis provide recommendations for integrating renewable energy into the health facility, wherever feasible.
- (xvi) Take photographs of assessed buildings, electrical infrastructure, and major medical equipment, including **distribution panels, feeders, cabling routes, joints, terminations, and earthing arrangements**, to assess physical condition, identify potential **energy decay due to ageing, undersized, or degraded wiring**, and maintain visual records to allow for comparison in the future, subject to consent from concerned facility officials.
- (xvii) Additionally, the consultant will provide all necessary support to achieve the objectives stated above, including but not limited to arranging and deploying appropriate measuring instruments such as power and harmonics analyzers, tachometers (contact and non-contact), lux meters, thermometers, infrared thermometers (non-contact), thermal imaging devices, ultrasonic flow meters, thermo-hygrometers, conductivity meters, and other relevant tools required for detailed electrical and energy assessment of the identified medical equipment and associated systems.

B. Development of documentation on the proposed energy assessments along with technical guidelines for conducting walkthrough assessments –

- a. Submit a detailed technical report based on the assessment findings, feedback, Energy savings assessment, and discussions with local stakeholders – for each of the health facilities.
- b. Develop a guidance document (maximum 15 pages) for stakeholders in Jharkhand and Rajasthan to conduct energy assessments in other health facilities. This can include the Significance of conducting an energy assessment, how frequently an energy assessment should be done, what minimum qualifications or experience needs to be considered for engaging certified energy assessors in the state, along with an assessment tool or checklist for smaller facilities with limited resources to conduct a professional energy assessment
- c. Collaborate with IRT throughout the process, providing expertise and support as required.

4. Deliverables, Milestones and Payment Schedule

S. No.	Milestone / Deliverable	Detailed Output / Acceptance Criteria	Timeline / Due Date	Supporting Evidence for Review	Payment Terms
1	Contract Kick-off and Inception	Contract signed; inception meeting conducted; assessment methodology, workplan, assessment formats, data collection templates, deployment schedule, and list of measuring instruments submitted and approved.	Week 1–3	Signed contract, approved workplan, meeting minutes, approved formats	20%
2	Completion of Field Energy Assessments and Data Collection	Energy assessments completed for all identified healthcare facilities, including electrical measurements, equipment inventory, load assessment, power quality analysis, photographs, and submission of weekly progress reports.	Week 4–8	Weekly progress reports, field records, geotagged photographs, completed data collection formats	40%
3	Submission of Draft Energy Assessment Reports	Submission of facility-wise draft energy assessment reports, raw and cleaned datasets, load inventory, energy performance analysis, energy conservation measures, energy efficiency recommendations, renewable energy assessment, technical	Week 9–11	Draft reports, digital datasets, recommendation note, technical analysis submitted and accepted for review	20%

S. No.	Milestone / Deliverable	Detailed Output / Acceptance Criteria	Timeline / Due Date	Supporting Evidence for Review	Payment Terms
		specifications, and Energy savings assessment.			
4	Submission of Final Reports and Guidance Documents	Incorporation of review comments and submission of final facility-wise energy assessment reports, final datasets, guidance document for stakeholders, walkthrough assessment SOPs/ self-assessment checklist, and all supporting documentation. Provide technical support to IRT through review meetings and technical discussions on actionable suggestions relating to recommended energy efficiency and renewable energy measures for up to one month after submission of final reports.	Week 12–14	Final approved reports, guidance document, SOP/checklist, complete digital handover	20%

5. Duration, Level of Effort and Location

a. Contract Duration: Approximately 14 weeks from the date of contract signing, followed by up to one month of post-submission technical support, if required.

b. Estimated Level of Effort: Milestone-based engagement. The consultant shall deploy an appropriately qualified multidisciplinary team to complete all activities within the stipulated timelines, including inception, field assessments, data collection, analysis, reporting, stakeholder consultations, and technical support.

c. Work Location: Hybrid engagement comprising:

- Field visits to the identified healthcare facilities for conducting detailed energy assessments.
- Remote and office-based work for data analysis, report preparation, stakeholder consultations, and review meetings.

d. Travel Requirement: Yes. The consultant shall undertake travel to all identified healthcare facilities and other locations as required for successful completion of the assignment. All costs related to travel, accommodation, local transportation, logistics, equipment mobilisation, and incidental expenses shall be included in the financial proposal. No separate reimbursement shall be made by IRT. IRT representatives may accompany the consultant during selected site visits at their own cost.

6. Required Qualifications and Experience

The consultant/consulting firm should meet the following minimum qualifications and experience requirements:

- **Educational Qualification**

- Lead Energy Assessor shall possess a Bachelor's degree or higher in Electrical Engineering, Energy Engineering, Mechanical Engineering, or a related discipline. Additional qualifications in Energy Management, Renewable Energy, or Energy Efficiency will be preferred.
- Accredited Energy Auditor (AEA) or Certified Energy Auditor (CEA) registered with the Bureau of Energy Efficiency (BEE), Government of India
- The assessment team should comprise suitably qualified engineers and technical professionals with relevant educational backgrounds.

- **Professional Experience**

- Minimum three (3) years of demonstrated experience in conducting detailed energy assessments of commercial, institutional, industrial, or public sector facilities.
- Experience in conducting energy assessments of healthcare facilities will be highly desirable.

- **Technical Expertise**

- Demonstrated expertise in energy assessments, electrical load assessment, power quality analysis, electrical distribution systems, energy performance analysis, and identification of energy conservation and energy efficiency measures.
- Experience in analysing the energy performance of electrical and medical equipment, developing energy performance indicators, conducting Energy savings assessment, and preparing technically sound recommendations for energy efficiency and renewable energy integration.
- Familiarity with relevant Bureau of Energy Efficiency (BEE) guidelines, applicable Indian Standards, and best practices in energy assessment.

- **Relevant Assignment Experience**

- The Consultant/Firm should have prior experience in conducting energy assessments, energy efficiency assessments, or similar technical assignments in healthcare facilities. ***Experience in one or more of the proposed project states (Assam, Tamil Nadu, and Kerala) will be considered an added advantage. Bidders are encouraged to submit relevant work references and client certificates, where available. Such experience may also be considered for similar assignments in the other project states, as applicable.***
- Successfully completed at least three similar assignments involving detailed energy assessments or energy efficiency assessments.
- Experience of working with Government departments, public healthcare institutions, public sector organisations, or development partners will be preferred.



- Experience of undertaking field-based assignments in remote or geographically dispersed locations will be an added advantage.
- **Technical Resources and Tools**
 - Ability to deploy qualified personnel and appropriate energy assessment instruments, including power and harmonics analysers, lux meters, thermal imaging cameras, ultrasonic flow meters, earth resistance meter and other relevant equipment required for the assignment.
- **Communication and Analytical Skills**
 - Demonstrated ability to analyse technical data and prepare high-quality technical reports with actionable recommendations.
 - Excellent written and verbal communication skills in English.
 - Proficiency in Microsoft Office applications, particularly MS Excel, MS Word, and PowerPoint, for data analysis, reporting, and presentation.

7. Commercial Terms and Payment Conditions

- This shall be a fixed-price, deliverable-based consultancy assignment. Payments shall be released only upon submission and written acceptance of the respective deliverables by IRT, in accordance with the agreed payment schedule.
- The financial proposal (no password protection required) shall be all-inclusive and shall cover professional fees and all costs necessary for successful execution of the assignment, including travel, accommodation, local transportation, logistics, deployment of personnel, mobilisation of energy assessment instruments, data collection, software, communication, printing, insurance, taxes, and all other incidental expenses. No additional reimbursement shall be made unless specifically approved in writing by IRT.
- The consultant shall be responsible for arranging all personnel, equipment, software, measuring instruments, and other resources required for completion of the assignment within the agreed contract value.
- Payments shall be linked to clearly defined milestones and deliverables. Submission of invoices shall be accompanied by the relevant supporting documents, including approved deliverables, reports, datasets, meeting records, or other evidence of completion, as applicable.
- The consultant shall address all review comments provided by IRT and submit revised deliverables, where required, prior to final acceptance. Payment shall be released only after written acceptance of the respective deliverable.
- All invoices shall reference the contract number, milestone achieved, and corresponding deliverables, and shall include all documents required for finance processing.
- IRT reserves the right to withhold or defer payment for deliverables that do not meet the agreed quality standards or contractual requirements until satisfactory revisions have been submitted and accepted.

8. Proposal Submission Requirements

Interested consultants/firms shall submit the following as part of their proposal:

- Technical Proposal/Statement of Interest demonstrating the consultant's understanding of the assignment, proposed methodology, implementation approach, quality assurance measures, and work plan.
- Team Composition and Updated CVs of the proposed key personnel, clearly indicating their roles, responsibilities, qualifications, and relevant experience.
- Relevant Experience including details of similar assignments successfully completed in the last 3 years, along with client references, work samples, or completion certificates, where available.
- The entire set of proposal should be of maximum of 3 files: Technical Proposal, Financial proposal and Organization related information including documents related to above mentioned details.
- **Detailed Methodology and Work Plan, including:**
 - Proposed approach and methodology for conducting the energy assessments.
 - Assessment schedule and deployment plan.
 - Data collection methodology and quality assurance procedures.
 - Roles and responsibilities of the proposed team.
 - List of energy assessment instruments and software proposed to be deployed.
 - Security, confidentiality, and data management protocols.
- Financial Proposal, submitted separately, providing a detailed cost break-up including professional fees, travel, accommodation, logistics, equipment deployment, taxes, and all other incidental costs. The proposal shall clearly indicate the applicable taxes and payment milestones.
- **Declaration(s), including:**
 - Conflict of Interest Declaration.
 - Declaration confirming that the consultant/firm is not debarred or blacklisted by any Government agency or funding organization.
 - Any other compliance declarations, Non-Disclosure Agreement (NDA), or statutory documents, if requested by IRT.

9. Selection Criteria:

- Proposals will be evaluated based on technical quality and financial cost.
- IRT may seek clarifications from applicants during the evaluation process.
- IRT reserves the right to modify or cancel the RFP process, reject any proposal, or make no award at its sole discretion.
- Contracts will not be awarded to organization's failing to meet our due diligence criteria.



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- All proposal preparation and submission costs shall be borne by the applicant. IRT will not reimburse these costs.

Disclaimer

- No part of this Request for Proposal shall be construed as an offer document. The acceptance of a proposal does not contractually bind IRT. The consultant must sign definitive contractual documents governing their relationship with IRT.

Deadline: November 10, 2026

Expression of interest:

All expressions of interest, queries and proposals in response to this RFP must be received via email to the contact below by November 10, 2026

Amittosh.Pandey@wri.org