

## Terms of Reference (ToR) for Market Assessment of Waste Heat Recovery Systems in India

### 1. KEY DATES AND DETAILS

Event	Dates
Closing Time for submission of Proposals	28 <sup>th</sup> March 2024 at 17:30 hrs IST.
Pre-bid Queries from Bidders	12 <sup>th</sup> March 2024 at 17:30 hrs IST. Please send your queries to the following email ID only: <a href="mailto:procurement_gef6@iiec.org">procurement_gef6@iiec.org</a>
Method to Submit Proposal	Proposals must be submitted to:  <b>Attention:</b> Ms. Angsanant Thiptaweechan Program Manager International Institute for Energy Conservation (IIEC) 1168/27 Unit B, 15th Floor, Lumpini Tower, Rama IV Road, Thungmahamek, Sathorn, Bangkok 10120, Thailand. <b>E-mail:</b> <a href="mailto:athiphaweecharn@iiec.org">athiphaweecharn@iiec.org</a> and <a href="mailto:procurement_gef6@iiec.org">procurement_gef6@iiec.org</a>  ( <b>PROPOSAL:</b> For 'Market Assessment of WHRS in India' by the closing time specified above)  Proposals submitted in any manner other than as detailed in this paragraph or submitted after the deadline shall be deemed to be invalid and may be excluded from consideration.
Number of Copies to be Submitted	The Bidder shall submit an <b>electronic version</b> (in PDF format) of its detailed Technical and Financial Proposal.
Expected execution date of Contract	By 08 <sup>th</sup> April 2024
Completion date	The Services are required to be completed on or before 08 <sup>th</sup> June 2024 or 60 days from the date of award of work order.

### 2. BACKGROUND

According to the Bureau of Energy Efficiency (BEE), India's energy efficiency market is estimated to be worth INR 150,000 Crores. Both government policies and efforts by multilateral and bilateral organizations to conserve energy across a wide range of sectors have supported the emergence of various innovative programs for implementing energy efficiency and demand-side management in India. In 2009, India has also seen the emergence of Energy Efficiency Services Limited (EESL), a Super ESCO. EESL is a Joint Venture of Power Grid Corporation of India Limited (PGCIL), NTPC Limited (NTPC), Power Finance Corporation Limited (PFC) and Rural Electrification Corporation Limited (REC) to facilitate the

implementation of energy efficiency projects. EESL is also leading the market-related actions of the NMEEE. To know more about EESL, visit [www.eeslindia.org](http://www.eeslindia.org)

Under the GEF-6 Cycle, the Global Environment Facility (GEF) is supporting Energy Efficiency Services Limited (EESL), for the execution of **“Creating and Sustaining Markets for Energy Efficiency”** Project. UNEP is the implementing agency for this project and EESL is the ‘executing agency’. This GEF project aims to reduce greenhouse gas (GHG) emissions through energy efficiency through scaling up and new technology applications. Since the start of 2024, the International Institute for Energy Conservation (IIEC) has been assisting EESL as a technical executing agency in the execution of the tasks under the GEF-6 project.

### 3. ABOUT INTERNATIONAL INSTITUTE FOR ENERGY CONSERVATION (IIEC)

The International Institute for Energy Conservation (IIEC) was established in the USA in 1984 as a non-governmental, not-for-profit organization and has regional offices in India, the Philippines and Thailand. IIEC’s mission is to accelerate the global adoption of energy efficiency and renewable energy policies, technologies, and practices to enable economic and environmentally sustainable development. IIEC pursues this mission in developing countries and countries in transition through fieldwork undertaken by its regional offices. For the last four decades, IIEC has been providing solutions to the problems posed by the rapidly increasing energy demand in developing and industrializing countries. IIEC works with governments and the private sector to develop, implement, and evaluate energy efficiency and renewable energy policies, programs, and projects.

### 4. STUDY OBJECTIVE

Industrial waste heat represents a significant untapped resource, often arising from industrial processes where generated energy goes unused. This includes the release of hot combustion gases, heated by-products, and heat transfer from equipment surfaces. Despite being poorly quantified, studies suggest that a substantial portion, ranging from 20 to 50% of industrial energy consumption is released as waste heat. However, industries can mitigate these losses by enhancing equipment efficiency or adopting waste heat recovery technologies.

Waste Heat Recovery (WHR) involves capturing and repurposing this excess heat for various applications, such as electricity generation, preheating combustion air, furnace load preheating, absorption cooling, and space heating. This approach not only improves overall energy efficiency but also contributes to sustainable industrial practices. Captured and reused waste heat is an emission-free substitute for costly purchased fuels or electricity.

As a part of the effort to diversify its programs, EESL is assessing the various opportunities in industrial and commercial energy efficiency interventions. The GEF-6 project is supporting EESL in this endeavor. With this background, IIEC is seeking to engage a consultant/agency to conduct a market assessment of WHR systems in the industrial sector. The assessment should include the market potential, available types, manufacturing capability, supply chain, and other key inputs and recommendations to support EESL in developing a national program on WHR Systems in India.

The study will be carried out in close collaboration with IIEC and EESL.

## 5. SCOPE OF WORK

### A. Aim of the Assessment

- To understand the market potential and current usage of Waste Heat Recovery Systems for the industrial sectors in India.
- To suggest a suitable program strategy including a business and financial model for EESL to help in large-scale deployment of WHR systems in India.

The broad list of key activities is mentioned below to be carried out under this assessment.

**B. Technology Assessment:** The agency shall provide a detailed analysis of the Waste Heat Recovery Systems based on various types of systems or solutions currently being implemented in industries and potential new solutions available globally.

- Market segment analysis for WHR systems based on the following classifications-
  - By Temperature: High grade, medium grade, and low grade.
  - By Source and size
  - By end-use application
  - By Technology including components & its costing
  - By Industry including both large and MSME
- Integration of WHR systems with other no / low carbon solutions such as Renewable energy to maximize the industry decarbonization.
- Enhancing WHR systems with Low carbon technologies such as integration with renewable energy technologies viz. solar and geothermal to maximize energy utilization.
- SWOT analysis of existing various WHR technologies
- Information on technical standards for both Indian and International Standards.

**C. Market Scanning:** The agency shall analyse the current market scenario including market potential, supply chain, mapping the stakeholders, market drivers and barriers, policy & regulatory framework

- Assess the current market potential (value (INR) & energy (MToE) and sector wise capacity), current penetration and trends in WHR systems within India & globally.
- Mapping of relevant stakeholders such as government agencies and policymakers, Manufacturing (Components of WHR), sales & service channels, solution providers and ESCOs, industry associations, end users, Donors, financiers and programs.
- Market drivers and barriers to adoption of WHRS (supply side, customer side, technological, financial, etc.).
- Learnings from previously implemented WHR projects/feasibility studies by other national & international agencies
- Assessment of current policy, institutional & regulatory frameworks including, gap assessment and recommendations. Linkage to govt. policies, schemes and UN SDGs.

**D. Program Strategy:** Suggest the Go-to-market strategy for EESL to focus on implementing the WHR systems which shall include,

- EESL's role and value add as program administrator
- Suitable WHR technology (solution-wise) that can be taken up by EESL for scaling up
- Target User group
- Business Model: Demand aggregation or Service models including EESL's value addition
- Mobilization of financing for WHR solutions, Innovative financing options such as carbon finance
- Sector wise and solution wise procurement/ bidding strategy
- M&V protocols
- After-sales service
- Market outreach strategy
- Direct & indirect benefits of WHRS deployment

**E. Consultations & National Workshop**

- Conduct consultations with relevant stakeholders with prior knowledge of IIEC.
- The agency should organize a workshop jointly with EESL & IIEC to launch & present the final assessment report inviting all the stakeholders.

*Note: The cost of conducting the workshop should not be included in the proposal, as it shall be reimbursed by IIEC at actuals (estimated maximum budget of 5 Lakhs) at a later stage.*

## 6. DELIVERABLES

The selected organization/agency will be responsible for producing or carrying out the following:

- Inception & interim Reports.
- A PowerPoint presentation summarizing the outcome/findings of the study separately.
- Comprehensive, professional, and design-ready publishable report, including the necessary and high-quality graphics. The organization/agency will be responsible for ensuring the report is nicely drafted and professionally edited. (word and pdf format)
- A design-ready and stand-alone executive summary report (10 pages approximately).
- Submission of workshop proceedings in the form of a report (word and pdf format).
- Data collected in a suitable format (excel sheets, word files or any other format as used by the selected agency)

## 7. SUBMITTAL & REPORTING

Interested organizations/agencies must provide information indicating that it is qualified to perform the services, along with budgetary quotes, by submitting separate proposals as described above via email to [athipthaweecharn@iiec.org](mailto:athipthaweecharn@iiec.org) and [procurement\\_gef6@iiec.org](mailto:procurement_gef6@iiec.org) with 'RFP – Market Assessment of WHRS in India' in the subject line by **28<sup>th</sup> March 2024**.

Proposals should include the following information.

- Brief background about your organization
- Organisational & team's relevant experience
- A narrative outlining the vision for the work along with the suggested methodology, work plan, and/or other technical inputs for the assignment.
- Team composition and individual qualifications & experience.
- References of similar projects or assignments with contact details (email and telephone)
- Budget information. The Organization/Agency should submit a detailed cost proposal in INR & USD.

## 8. TIMELINES

The shortlisted Organization/Agency is expected to complete the deliverables as per the timelines listed below-

Deliverables (as per the scope of work)	Timeline
Inception Report	Within 7 days of the inception meeting
Interim Report	Within 30 days from the date of award of the work order
Draft Study Report	Within 60 days from the date of award of the work order
Final Report submission & presentation	Within 75 days from the date of award of the work order

## 9. SCHEDULE OF PAYMENT

- 20% Upon receipt and approval of the inception report.
- 30% Upon receipt and approval of the interim report, incorporating feedback/comments from the peer review process.
- 40% Upon receipt and approval of the final report.
- 10% post organising the workshop for report launch.

## 10. EVALUATION CRITERIA

The evaluation of bids shall be done on Quality cum Cost Based Selection with 75% (seventy five percent) weightage to technical score and 25% (Twenty five percent) weightage to financial bid. The following are the qualification criteria for selection of organization/agency.

- **Pre-screening:** All applications meeting the minimum eligibility criteria and conformance to the application content requirements will be evaluated by the Evaluation Committee (EC).

- **Final Evaluation:** The proposals will be evaluated based on the marks obtained as per the criteria provided below against each category by the EC.

Parameters	Marks	Maximum Marks
Quality of Technical Proposal <b>Sub-Criteria:</b> a. Adequacy of the proposed methodology in responding to the Terms of Reference. b. Technical approach and work plan. c. Specific experience of the proposed team members.	20  20 15	<b>55</b>
Specific experience of the Organization/Agency relevant to the assignment	20	<b>20</b>
Bid cost competitiveness		<b>25</b>
<b>TOTAL</b>		<b>100</b>

## 11. QUALIFYING REQUIREMENTS

- Have legal status in India enabling the firm to carry out the assignment.
- The organization/ agency must have a minimum of Five (5) years in business with demonstrated knowledge of and prior assignments related to WHRS in India.
- Experience in successfully carrying out at least 3 similar market assessment studies, particularly in the industrial energy efficiency domain.
- Prior work experience in energy efficiency programs with bi-lateral or multi-lateral organizations and the Government of India is desirable.
- A team comprising of:
  - **Team Leader** – With a minimum experience of 15 years and expertise in project management, market research, technology assessment, preparation of Detailed Project Reports related to business modeling, energy efficiency in the industrial sector etc.
  - **Technical Experts (Energy Efficiency) (2)** – With a minimum experience of 7 years in the field of energy efficiency, industrial/building energy, feasibility studies, financial modeling, energy audits, preparation of Detailed Project Reports etc.
  - **Financial Expert** – With a minimum experience of 7 years in finance domain such as financial modeling, quantitative assessments etc.

**Note:** Bidders shall submit the relevant supporting documents showcasing their qualifications and experience relevant to the qualifying criteria mentioned above. However, IIEC holds the right to seek any additional documents during the evaluation process as deemed necessary.

## 12. INSTRUCTIONS FOR BIDDERS

- Bidders are requested to submit the Technical & financial proposals in a single file (in pdf format), in a single mail along with all supporting documents in a separate file or folder.
- Files/ Folders greater than 20 MB in size will not be delivered in the above-mentioned email ID resulting in non-submission of the bids.
- The bidders can submit the proposal and documents in a maximum of two separate emails due to the size limitations of email as mentioned above.
- Submission of bids through any open source or links to shared drives such as Google Drive, OneDrive, WeTransfer, Dropbox etc. shall not be entertained and will stand disqualified.
- Project references and the associated documentary evidence should be easily identifiable for ease of evaluation.

### 13. TERMS AND CONDITIONS

- IIEC is under no obligation to accept any proposal or part thereof, that is received in response to this project.
- IIEC reserves the right to seek clarification or request for any additional documents as deemed necessary. Furthermore, the IIEC reserves the right to modify or cancel the RFP (including extending the deadline for the receipt of proposals) without justification or compensation payable to the bidder.
- IIEC will not reimburse bidders' expenses, including those related to responding to this RFP. In case any additional tasks are required, the consultant should seek prior approval in writing from IIEC.
- Confidentiality: All data and information received from IIEC and partner organizations, provided to the agency for this assignment is to be treated confidentially and are only to be used in connection with the execution of these Terms of Reference (a specific separate confidentiality agreement may be agreed between the Consultancy and IIEC, if needed to provide information more freely). All intellectual property rights arising from the execution of these Terms of Reference are assigned to IIEC. The contents of written materials obtained and used in this assignment may not be disclosed to any third parties without the expressed advance written authorization of IIEC and its partner organizations.