

## Terms of Reference (ToR)

for

## Market Assessment of Energy-Efficient Technologies for Industrial Utilities

### 1. KEY DATES AND DETAILS

Event	Dates
Closing Time for submission of Proposals	<b>26<sup>th</sup> July 2024 at 17:30 hrs IST.</b>
Pre-bid Queries from Bidders	<p><b>10<sup>th</sup> July 2024 at 17:30 hrs IST.</b></p> <p>Please send your queries to the following email ID only: <a href="mailto:procurement_gef6@iiec.org">procurement_gef6@iiec.org</a></p> <p>Pre-bid queries received after this deadline shall not be considered.</p>
Method to submit Proposal	<p><b>Proposals must be submitted to:</b></p> <p><b>Attention:</b> Ms. Aungsanant Thiptaweecharn 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:procurement_gef6@iiec.org">procurement_gef6@iiec.org</a></p> <p>The Bidder shall submit only an <b>electronic version</b> (in PDF format) of the proposal strictly in separate attachments as mentioned below-</p> <p><b>File 1: Technical Proposal (not more than 20 pages)</b> including Organizational Capacity, approach &amp; methodology, work plan, specific project experience and team members' CV. The CV of each team member should not exceed 3 pages. However, CVs do not count as a part of 20 pages limit.</p> <p><b>File 2: Financial Proposal (not more than 2 pages)</b></p> <p><b>File 3: Only Copy of Work Orders showcasing relevant experience (not more than 15 pages)</b></p> <p><b>File 4: Letter of Association (In case of JV), Certificate of Registration (legal status), Financial audited statement of last 3 years (In case of JV Credentials required are of Lead Bidder).</b></p>

	<p><i>(The proposal document should be single-spaced, 12-point Times New Roman font in Microsoft Word, at least one-inch margins)</i></p> <p>Proposals with conditional offers or with variables, submitted in any manner other than as detailed in this section or submitted after the deadline shall be deemed to be invalid and may be excluded from consideration.</p>
Expected execution date of Contract	09 <sup>th</sup> August 2024
Completion date	The Services are required to be completed on or before 06 <sup>th</sup> November 2024

## 2. BACKGROUND

The overall size of the energy efficiency market in India is estimated to be 18.51 billion USD<sup>1</sup>. 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 the implementation of energy efficiency and demand-side management in India. The growing market for energy efficiency has also paved the way for the emergence and growth of new domestic and international energy service companies (ESCOs). In 2009, India has also seen the emergence of Energy Efficiency Services Limited (EESL), a Super ESCO. The key objective behind the creation of EESL was to undertake risks, demonstrate large-scale energy efficiency ESCO projects and transform the energy efficiency market. EESL is also playing the role of a Consultancy Organization for national-level Climate Change initiatives and the transformation of the market through the introduction and promotion of new and appropriate energy-efficient technologies.

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 and ADB are the implementing agencies for this project and **EESL is the ‘executing agency’**. The objective of this project is to reduce greenhouse gas (GHG) emissions through energy efficiency through scaling up and new technology applications. The International Institute for Energy Conservation (IIEC) is assisting UNEP and EESL in the execution of remaining tasks under GEF-6 project.

<sup>1</sup>[ESCOs | BUREAU OF ENERGY EFFICIENCY, Government of India, Ministry of Power \(beeindia.gov.in\)](https://beeindia.gov.in)

## 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

In FY 2022-23 according to CEA report, India consumed approximately 1503 billion units. The industry accounts for approximately 42% of total electricity consumption in India. While various sectors contribute to these emissions, electric motors and motors driven systems including common industrial utilities like air compressors, pumps, HVAC, fans and blowers, account for approximately 70% of the electricity consumed by industries.

Compressed air systems are significant energy consumers, gobbling up approximately 10% of all industrial electricity consumption. At the same time, compressed system offers significant energy saving opportunities ranging from 10% to even more than 50% through improving compressed air generation, distribution and users' performances by adopting best technology, system design, operation and maintenance practices. Compressed air finds utility across a broad spectrum, with applications ranging mere few cfm to 10,000 cfm and beyond and are available in capacities ranging from few kW to Mega Watts.

The majority of industries have a basic requirement of water pumping system. This pumping system accounts for 25-30% of power consumption in industries with basic requirement to fulfill by using pumped water for various applications like process requirements, cooling systems, heat exchange, steam production etc. High power consumption in these motor driven pumpsets operating at poor efficiency due to wrong pump selection and deviation of operating point from optimum efficiency point, lead to major losses and there is a good scope of energy savings in such systems, ranging from 10% to 40%.

Fans & Blowers are widely used in industrial and commercial applications. From shop ventilation to material handling to boiler applications, fans & Blowers are critical for process support and human health. In the manufacturing sector, fans & Blowers represents about 8 - 12 percent of the electricity used by motors and offer significant energy saving opportunities ranging from 15 to 50% through right selection, use of advanced technology like EC fans, turbo blowers etc.

Above mentioned common utility system including Compressors, Pumps, Fans & Blowers, and Process heating system account for 30 – 40% of total energy consumption by industrial sectors, thus energy efficiency and overall performance of these utility systems are critical for industrial decarbonisation. Therefore, improvement in energy performance of the common utility systems including Compressors, Pumps, Fans & Blowers must be a part of any comprehensive clean energy transition effort.

With this background, IIEC is seeking to engage a consultant/ agency to conduct a Market Assessment of the energy efficient technologies for industrial utilities.

The assessment should include the available technology and types, present status and possibilities of energy efficiency improvement, market potential, manufacturing capability, supply chain, and other key inputs and recommendations to support EESL for large scale deployment programs.

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

## 5. SCOPE OF WORK

### A. Aim of the Assessment

- To conduct a comprehensive analysis of the current market potential targeting Energy Efficient technologies for industrial utilities in India (All sectors under the PAT and MSME needs to be covered).
- To suggest a suitable program strategy including business and financial models for developing a comprehensive program on the identified technologies.

### B. Technology Assessment

The agency shall provide a detailed analysis of the below identified technologies covering the various types currently being implemented in Indian industries and may include new potential solutions available globally.

- Compressed Air system (Distribution Network and Use)*  
Energy-efficient compressors (Screw with PM/Induction motors/ Centrifugal/Lube/Non-Lube/ Piping & pipe material, User end controls).
  - Fans & Blowers*  
EC blowers, Turbo blowers, Centrifugal blowers, Positive displacement blowers and Axial blowers.
  - Water Pumping Systems*  
Centrifugal pumps, Reciprocating and Rotary Pumps
- For each of the above three classifications provide a priority matrix mentioning the technology with the highest potential of scaling up to the least potential and efficiency.
  - For each of the above three classifications, mapping of typical equipment capacities installed in different industries / industrial sectors for standardizing the product offerings as applicable.
  - Potential energy savings, carbon emissions reductions, and project economics associated with the widespread adoption of targeted energy-efficient technologies.
    - For the compressed air systems, the savings potential and strategy should be presented in two parts: i) only Compressors ii) Compressors with distribution network (piping etc.)

### C. Market Scanning

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

- Assess the current market potential (value, capacity, and sector-wise) of the following technologies in India including the import-export scenario.
  - i. Compressors
  - ii. Fans & blowers
  - iii. Pumps

- Mapping of relevant stakeholders such as government agencies and policymakers, Manufacturers/OEMs, sales & service channels, solution providers and ESCOs, industry associations, end users, Donors, and programs.
- Supply chain mapping: Manufacturing, sales & service channels, and availability, etc.
- Current penetration of energy-efficient industrial utility-based technologies in different industries.
- Market drivers and barriers to adoption of energy-efficient industrial utility-based technologies (supply side, customer side, technological, financial, policy etc.)
- Assessment of current policy, institutional & regulatory frameworks, gap assessment and recommendations. Linkage to policies and plans such as Net zero emissions targets and UN SDGs.
- Develop a priority matrix to pinpoint industrial sectors with the largest opportunity for adoption of these energy-efficient equipment.

#### **D. Program Strategy**

The agency shall suggest the Go-to-market strategy for EESL for industrial utility-based technologies which shall include:

- EESL's role and value add as program administrator.
- Sector-wise Target User group
- Demand aggregation methodology as suitable.
- Procurement and service models
- Innovative financing such as carbon finance
- Monitoring & evaluation frameworks for performance validation
- Potential capital flow routes and required capital for different business models
- Potential risks and mitigation measures
- After-sales service strategy
- Market Outreach

#### **E. Consultations & National Workshop**

- Conduct consultations with relevant stakeholders with prior knowledge of IIEC.
- Organise a workshop jointly with EESL & IIEC to launch & present the 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 1 Lakh for each technology/component) at a later stage*

## **6. DELIVERABLES**

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

- Inception & Interim Report.
- A PowerPoint presentation summarizing the details 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 the single proposal for all three technologies as described above via email to [procurement\\_gef6@iiec.org](mailto:procurement_gef6@iiec.org) with the subject as **'Proposal for Market Assessment of Energy Technologies for Industrial Utilities'** in the subject line by **26<sup>th</sup> July 2024 at 17:30 hrs IST.**

- 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 bidder should submit a detailed cost proposal in USD only.

## 8. TIMELINES

The shortlisted consultant/ agency expected to complete the deliverables as per the timelines listed below-

<b>Deliverables (as per the scope of work)</b>	<b>Timeline</b>
Inception Report	Within 10 days of the inception meeting
Interim Report	Within 60 days from the date of award of the work order
Study Report (Draft)	Within 75 days from the date of award of the work order
Final Report submission & presentation	Within 90 days from the date of award of the work order

## 9. SCHEDULE OF PAYMENTS

- 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 project report.
- 10% post organising the workshop for report launch and dissemination.

## 10. EVALUATION CRITERIA

The bids shall be evaluated based on the Quality cum Cost Based Selection **with 80% (Eighty percent) weightage to technical score and 20% (Twenty percent) weightage to financial bid**. The following are the qualification criteria for the selection of an 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	25	<b>65</b>
b) Technical approach and work plan	20	
c) Specific experience of the proposed team members	20	
Specific experience of the Organization/Agency relevant to the assignment	15	<b>15</b>
Bid cost competitiveness	20	<b>20</b>
<b>TOTAL</b>		<b>100</b>

## 11. QUALIFYING REQUIREMENTS

- Have a legal status in India enabling the firm to carry out the assignment.
- Average annual turnover for the last three financial years should be at least INR 3 Crore. In the case of JV, the Lead partner must meet the ATO criteria.
- The organization/ agency must have a minimum of Five (5) years in business with demonstrated knowledge of and prior assignments related to industrial energy efficiency.
- Experience in successfully carrying out at least one market assessment in the industrial energy efficiency domain.
- Experience in successfully carrying out projects/studies (Feasibility Studies, Technology Assessment, Project Management, Market Assessment, etc.) in at least one of the technologies as mentioned in 5(B) in this TOR.
- 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 market assessment, market research, technology assessment, project management, preparation of Detailed Project Reports related to business modeling, energy efficiency in the industrial sector etc.
  - **Technical Expert- 2 Nos. (Industrial Energy Efficiency)** – With a minimum experience of 10 years in the field of industrial energy efficiency, 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 complete proposal as mentioned on Page 1 of this RFP document.
- Files/ Folders greater than 20 MB in size will not be delivered on the above-mentioned email ID resulting in non-submission of the bids.
- 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.
- Submission of Financials should indicate the component of local taxes, as applicable.

## 13. TERMS AND CONDITIONS

- The maximum cumulative liability of the Consultant/ agency entering a contract with the Client shall be limited to the Contract Value.
- 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 of 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.