TERMS OF REFERENCE (TOR) FOR

CONSULTANT FOR INDUSTRIAL ENERGY EFFICIENCY TECHNOLOGY ASSESSMENT IN INDONESIA'S PULP, PAPER, FOOD AND BEVERAGE, AND TEXTILE SECTORS

PROJECT NAME:

"The GCF-KDB Programme: Supporting Innovative Mechanisms for Industrial Energy Efficiency Financing in Indonesia with Lessons for Replication in other ASEAN Member States"

DEADLINE:

11 April 2025

I. PROJECT NAME

GCF-KDB Programme: Supporting Innovative Mechanisms for Industrial Energy Efficiency Financing in Indonesia with Lessons for Replication in other ASEAN Member States

II. POST TITLE

Consultant for Industrial Energy Efficiency Technology Assessment in Indonesia's Pulp, Paper, Food and Beverage, and Textile Sectors.

III. BACKGROUND

The ASEAN Centre for Energy (ACE) is an intergovernmental organisation that independently represents the 10 ASEAN Member States' (AMS) interests in the energy sector. The Centre serves as a catalyst for the economic growth and integration of the ASEAN region by initiating and facilitating multilateral collaborations as well as joint and collective activities on energy. It is guided by a Governing Council composed of Senior Officials on Energy from each AMS and a representative from the ASEAN Secretariat as an ex-officio member. Hosted by the Ministry of Energy and Mineral Resources of Indonesia, ACE office is located in Jakarta.

Part of the efforts to fulfil its function as a regional centre of excellence that builds a coherent, coordinated, focused and robust energy policy agenda and strategy for ASEAN, ACE conducts joint studies, policy dialogues and capacity buildings for ASEAN Member States to support the implementation of the ASEAN Plan of Action for Energy Cooperation (APAEC) 2016-2025.

APAEC 2016 – 2025 is served as the blueprint for enhancing energy connectivity and market integration in ASEAN to achieve energy security, accessibility, affordability, and sustainability for all AMS. These provide the regional blueprint for reducing the energy intensity of the region by 32% by 2025. One of the main program areas is Energy Efficiency and Conservation (EE&C). The EE&C program area has an outcome-based strategy (OBS) that is: OBS 5 – to advance Energy Efficiency and Energy Management in industry, which focuses on promoting energy management in industry to increase competitiveness and reduce energy consumption.

The industry sector accounted for 39.1% of total final energy consumption in the region in 2020, well above the other sectors1. This number is on course to be tripled by 2050. Characterised as a hard-to-abate sector due to its fossil fuel-dependent operations, this sector requires strategies specifically tailored to decarbonise. For these reasons, implementing energy efficiency measures in the industrial sector is essential for near- and mid-term strategies before fuel or technological substitutes become viable in the future, further accelerating energy transition while enhancing energy security.

However, adoption of energy-efficient technologies and measures is often limited by a wide range of barriers, including lack of awareness, limited access to finance, regulatory challenges, and perceived risks associated with new investments.

IV. PROJECT DESCRIPTION

In 2023, Green Climate Fund and Korea Development Bank have signed a funded activity agreement (FAA) for a programme called "Supporting Innovative Mechanisms for Industrial Energy Efficiency Financing in Indonesia with Lessons for Replication in other ASEAN Member States programme".

[1] ASEAN Centre for Energy (2022), The 7th ASEAN Energy Outlook

The programme provides a package of innovative energy efficiency solutions including financial de-risking mechanisms, exploration of new energy service business models, development of a supportive regulatory framework, and technical assistance for the industry sector in Indonesia. There are three main components of the programme:

1. Energy Efficiency Finance: provide backstopping credit risk of local FI's own loan with GCF Credit Guarantee via local FIs
2. De-risking Mechanism: introduce Energy Saving Insurance (ESI) and ESCO financing structure through knowledge sharing, workshops, consultations, and capacity buildings
3. Technical Assistance for the Market Readiness: Strengthen local Financial Institutions' capacity, provide technical advisory services for industry players, and develop regulatory frameworks.

ASEAN Centre for Energy (ACE) is an executing entity, providing technical assistance activities to execute components 2 and 3 of the programme mentioned above.

The programme starts from April 2024 and ends in April 2031.

V. OBJECTIVE AND OUTCOMES

The primary objective of this consultancy is to support the implementation of the De-risking Mechanisms in Indonesia's industrial sector through technology assessment, with a focused study on the pulp, paper, food and beverage, and textile subsector. The findings will contribute to the development of sustainable financing mechanisms for energy efficiency project, enabling industry players to mitigate financial risks and accelerate technology adoption.

The expected outcomes include an enhanced technical knowledge in risk mitigation through the adoption of energy-efficient technologies and an increased industry readiness for sustainable financing mechanisms.

The main intended outputs at the project level include the following:

- Identification of the current technological landscape in Indonesia's pulp, paper, food and beverage, and textile subsectors through site assessment and interview with industry players.
- Benchmarking of existing industry technologies in Indonesia, compared to international best practices.
- Enhanced engagement of industry stakeholders and technology providers in promoting the adoption of energy-efficient technologies.
- Implementation of Energy Savings Insurance (ESI) to accelerate the adoption of these technologies to boost efficiency in Industry sector in Indonesia

The consultancy will include preparing and conducting a series of activities, including assessing the current state of industrial technologies and provide technical insights to facilitate informed investment decisions in energy-efficient solutions through workshop.

VI. TASKS TO BE UNDERTAKEN

1. **Pre-Assessment Stage**
   - Prepare an inception report detailing the work plan, methodology, milestones, and timeline for the assessment.
   - Conduct a literature review on best-available-technology (BAT), existing policies, and regulations related to industrial energy efficiency in Indonesia, particularly in pulp, paper, food and beverage, and textile subsectors.

2. **Assessment Stage**
   - Conduct site surveys and interview to identify the current state of technologies used in the selected industries.
   - Analyse existing energy performance indicators, including but not limited to energy consumption per outputs, energy-intensive equipment, and potential areas for optimisation.
   - Establish energy baseline(s) as a reference for comparison with BAT and/or other initiatives for energy improvements.
   - Develop a report which includes findings, analysis on current technology state, technological gaps, and secondary analysis on economic feasibility.

3. **Post-Assessment Stage**
   - Develop a benchmarking report that compares Indonesia's industrial technological landscape compares to international best practices.
   - Develop financial assessment of replacing the existing outdated technologies in selected industries in Indonesia with the best-available-technologies, adopting the Energy Savings Insurance (ESI) as a tool to attract investment in this sector.
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VII. WORK MECHANISMS

The implementation of the project is arranged as below:

- Led by the Energy Efficiency and Conservation (CEE) Department, ACE is responsible for providing technical assistance to the GCF-KDB Programme as the implementing entity while KDB handles the financial mechanism. In this activity, ACE will manage and facilitate the work and communication with the Korea Development Bank (KDB).
- The Consultant provides the technical expertise and support as described in this TOR. The consultant is responsible for communicating with external parties required under this project, particularly selected companies or plants to be assessed. During the work period, the consultant must have regular check-in call meetings with ACE to discuss progress in every work step. Any interaction with the external parties to support the project by the consultant must be approved by ACE.

VIII. DELIVERABLES AND DURATION OF ENGAGEMENT

The Consultant awarded with the assignment will be hired **for 4 months**, starting from **April 2025** and obliged to work within the required deadlines and be available for calls if needed. An indicative timeline is provided below:

No.	Deliverables	Deadline
1.	One (1) Inception Report, identifying outlines of the work plan, methodology, milestones, and detailed timeline for each activity	5 May 2025
2.	Three (3) Technology Assessment Report, one for each subsector as follows: • One (1) Technology Assessment Report for Pulp and Paper Industry • One (1) Technology Assessment Report for Food and Beverage Industry • One (1) Technology Assessment Report for Textile Industry Each report shall cover the common existing technologies used, benchmarking with international best practice / best-available-technologies, economic analysis with ESI, and challenge to adopt the technologies in Indonesia.	22 August 2025

IX. CONSULTANT QUALIFICATION

ACE requires a consulting service provider or technical experts with proven experience and capacity to provide the necessary tasks and deliverables as described above. The desired qualifications are:

- Preferably master's degree or equivalent in Electrical Engineering, Mechanical Engineering, Industrial Engineering, Economics, Management and other related fields.
- At least 7 years of relevant expertise in industrial energy efficiency assessment, techno-economic assessment, and business models particularly in Indonesia.
- Familiarity with ISO 50001 Energy Management Standard, ISO 50006, or other relevant industry standards.
- Relevant certifications such as Certified Energy Manager (CEM), Certified Energy Auditor (CEA), or International Performance Measurement and Verification Protocol (IPMVP) Certification.
- Ability to apply energy performance monitoring tools, benchmarking methodologies, and cost-benefit analysis for technology adoption, with expected proficiency in data analysis financial models.
- Relevant experience in assessing energy in pulp, paper, food and beverage, and textile industry.
- Strong understanding of energy regulations, standards that apply, and energy cost measurement in Indonesia. Familiarity with de-risking mechanisms for energy efficiency investments, such as Energy Savings Insurance (ESI), ESCO financing, or blended finance approaches, is given preference.
- Ability to produce detailed and comprehensive reports, including actionable recommendations for energy efficiency improvements.

- Proficient in English and Bahasa Indonesia, both written and spoken, is required.

X. SERVICE FEE

- For satisfactory performance of the assignment, Consultant will **be paid a lump sum fixed fee, ranging from USD 15,000 – USD 20,000.**
- The service fee awarded to the consultant will depend on the scope of the work and tasks to be delivered. ACE and the consultant will agree upon a detailed price breakdown before the activities start.
- The fee shall include all stakeholders or consultation meetings, and site visits necessary to collect the data for the assessment.
- We strongly encourage all interested candidates to **submit a competitive price proposal, with a clear fee mentioned for each deliverable**. Given the high level of competition, proposals that demonstrate equivalent qualifications at a more favourable price point will be given preferential consideration.
- Payment will be made to the Consultant's nominated bank account. The first payment will be issued upon submission of the initial draft of the document, with the final payment made after the successful approval of the completed report.
- ACE is an intergovernmental organisation and is not liable for any taxes. You shall file and settle any payment for income tax arising from the income from ACE. ACE shall not be responsible for any consequences of your failure to fulfil your obligation relating to the income taxation laws of your respective country.

XI. REQUIRED DOCUMENTS

Interested consultants or individual experts should submit a proposal (maximum 10 pages), which becomes the evaluation criteria, that contains:

- **Introduction:** explain your expertise and experience that is relevant to the ToR
- **Scope of Work**: understanding about the tasks and deliverables of the study
- **Methodology**: explain your data collection method, what data to collect, analysis to perform
- **Timeline**: breakdown of detailed activities with gantt chart and milestones towards completion of the project
- **Resource Management**: provide experts' profiles/CV to be involved in the projects with their roles, identify potential risks that may hamper the projects and how to mitigate them, and regular reporting mechanisms to ACE
- **Financial Proposal**: provide cost breakdown and alignment with the scope of the project.

XII. SELECTION PROCESS AND TIMELINE

The selection process and timeline for this procurement are as follows:

- Call for Proposals : From 17 March to 11 April 2025
- Shortlisting of Proposals : From 14 April to 16 April 2025
- Interview : From 17 April to 22 April 2025
- Clarification & Evaluation : From 23 April to 25 April 2025
- Winner Announcement : 28 April 2025

XIII. SUBMISSION OF APPLICATION

Please submit the proposal alongside your CV or Company Profile to email with the subject: **"Industrial EE Technology Assessment_GCF-KDB Programme**", to ACE's Procurement Division (procurement@aseanenergy.org) and cc to cee@aseanenergy.org no later than **11 April 2025 (GMT+7).**

We encourage early applications as the recruitment process will close upon the selection of a suitable candidate.

XIV. AMENDMENT TO TERMS OF REFERENCE

These Terms of Reference may be amended in writing only, subject to the agreement of both parties.

XV. CONFIDENTIALITY AGREEMENT

Without written permission from ACE, the consultants shall not disclose any data or information to external parties.

XVI. ACE GOVERNANCE POLICIES ON FRAUD AND CORRUPTION

ACE takes a zero-tolerance approach to fraud and corruption involving ACE Staff Members and third parties concerning their work with ACE. ACE encourages the use of the Whistle-Blower Policy to report any identified cases of fraud and/or corruption in ACE operations.

XVII. COPYRIGHT AND INTELLECTUAL PROPERTY

All material produced under this assignment will belong to ACE and remain the property of ACE. The consultants will not have any control over copyright claims and intellectual property.

XVIII. CONTACT PERSON

All communications and queries related to this ToR shall be submitted in writing through email to cee@aseanenergy.org and procurement@aseanenergy.org