

Terms of Reference

Programme:	Indonesia-Denmark Energy Partnership Programme (INDODEPP)	
Project:	Pilot Project on Voluntary Agreement Schemes (VAS) in Cement, Food & Beverage (F&B), and Pulp & Paper Industries	
Subject:	Energy auditing, pre-feasibility study, and investment reports prepa- ration to selected industries under the pilot project of VAS	
Date:	2024.01.24	

1 Background

Indonesia has strategically outlined its targets on energy efficiency in the National Energy Policy (KEN) with the objective of achieving a 1% annual reduction in energy intensity and a 17% reduction in final energy consumption by 2025. This vision aligns with the recently ratified Governmental Regulation No. 33/2023 on Energy Conservation, which mandates energy suppliers and users with an annual energy consumption equal to or exceeding 500 TOE to implement energy management measures. This regulatory framework serves as a pivotal enabler, unlocking untapped energy-saving potentials across the building, industrial, and transportation sectors. The resultant decrease in energy consumption and emissions not only enhances economic competitiveness but also mitigates environmental degradation, fortifying the grid system for seamless integration of renewable energy sources.

The Directorate of New, Renewable Energy, and Energy Conservation (EBTKE), specifically the Directorate of Energy Conservation, is on the process of formulating ministerial regulations in response to Governmental Regulation No. 33/2023 issuance, including the design of incentive schemes. Leveraging Denmark's extensive expertise in energy efficiency, notably through programs like the Voluntary Agreement Scheme (VAS), can serves as a benchmark. Originating in 1996, VAS has garnered significant industry participation by offering incentives to those implementing consistent energy management practices and achieving specified energy reduction targets. Incentives encompass energy tax reimbursements, energy audits, and pre-feasibility studies to guide investment decisions.

Drawing inspiration from Denmark's successful Voluntary Agreement Scheme (VAS), Denmark aims to replicate the VAS model in partnership with other countries, tailoring its application to Indonesia's unique context. The INDODEPP program, in collaboration with EBTKE, seeks to implement insights gleaned from a Socioeconomic Analysis of Introducing a Voluntary Agreement Scheme (VAS) for the Industrial Sector in Indonesia. This initiative manifests through a pilot project benefitting ten (10) enterprises, offering non-fiscal incentives such as energy audits, pre-feasibility studies for selected projects, and facilitating business matchmaking with potential investors and financial institutions.

Focusing on key energy-intensive sectors — Cement, Food and Beverage (F&B), and Pulp & Paper — the program extends support to entities demonstrating a strong commitment to implementing energy efficiency practices. Eligible participants are those mandated by Governmental Regulation No. 33/2023, with a minimum energy consumption threshold of \geq 500 TOE.

This collaborative effort involves the active support of the Danish Embassy in Indonesia, the Danish Energy Agency (DEA), and EBTKE. The anticipated duration of the pilot project is one year, with the collective objective of fostering sustainable energy practices and realizing substantial efficiency gains within Indonesia's industrial landscape.



2 Objectives of the assignment

The objective of the assignment is to establish a pilot of an incentive scheme with ten companies in the Cement, Food and Beverage (F&B), and Pulp & Paper industries. These companies will enter into a voluntary agreement with EBTKE in exchange for an energy screening of the production facility and a prefeasibility study of one or more selected projects involving energy consumption and CO2-emissions savings. This initiative aims to contribute to compliance with Government Regulation No. 33/2023 on Energy Conservation and further develop the national regulatory framework on incentive schemes, thereby strengthening the implementation of energy efficiency measures in industries.

3 Organisation

EBTKE, DEA, and the Danish Embassy in Indonesia manage the programme and the tasks included. The tasks under Position 4, Energy Efficiency are conducted by International Consultant Viegand Maagøe, VM.

This Terms of Reference concerns the task energy auditing and pre-feasibility study in the prioritised subsectors to which a local consultant, LC is needed.

LC will be subcontracted by VM and report to VM.

4 Objectives of the task

The local consultant will in close cooperation with VM be responsible for planning, conducting, and reporting on a total of 3-4 energy audits and pre-feasibility study per subsector for achieving insights, overview and knowledge of the total energy consumption in the sugar industry of Indonesia, potentials for energy efficiency savings and specific energy consumption for the main processes and categories of products.

5 Planning

EBTKE with support from DA, DEA and VM is in process for selection of facilities in cement, food & beverage, pulp & paper subsectors. It must be expected that all facilities have an energy consumption above 4,000 TOE.

Roles and responsibilities in the planning process is given below:

- EBTKE will make an agreement with the facility.
- LC will make the arrangement with the enterprises and facilitate the visits and all communication with the enterprise during the whole assignment.

6 Preparing the energy audits

VM will prepare a questionnaire with request for relevant data and information and LC will translate into Bahasa and collect and qualify the requested data and information from the enterprises and deliver to the VM.

7 Energy audit

The first energy audit will be conducted in common by VM/LC. LC sets up the practical arrangement for three days of field work at the chosen facility and will act as interpreter for VM. The energy audit shall include:

- Product volumes in and out of the facility
- Block diagram with main processes and product volumes
- Purchase of electricity and fuels



- Main energy flow through the plant
- Focus on the main energy consumers in both the process and in steam generation
- Preparing a screening report including:
 - o Savings in MWh/year and energy source and share of the total consumption
 - Reduction in CO2-emissions (scope 1 & 2)
 - Description of the proposal
 - o Estimation of the investment, saving and payback period
 - Recommendation with a prioritization of the proposals

LC will compile the gathered data and information into a draft report and VM will comment and ad further details and assessments. When the English version is finalised, and approved by VM, DEA, DA and EBTKE LC will translate it into Bahasa.

8 Selection of proposals for a pre-feasibility study

LC shall organize an online meeting between the enterprise and local consultant & international consultant. One or several proposals will be selected. If it is a large and/or complicated proposal only one shall be selected. Alternative two or three proposals can be selected.

9 **Pre-feasibility study and Investment report**

In relation to the pre-feasibility study the local consultant will visit the site again to elaborate on the scope, prerequisites, and the possible realization of the proposal(s).

The outcome of the pre-feasibility study will be an investment summery report, which will be supported by the development of a simple Excel-based business case tool, which will provide relevant outputs such as cashflow projections, net present value and internal rate of return.

The investment summary report will include:

- Key Figures

- Investment IDR million
- Annual cost savings IDR million / year
- o Energy saving MWh / year
- Energy saving / baseline %
- o CO2 emission reduction ton / year
- WACC %
- Net present value (NPV) IDR million
- Internal rate of return (IRR)

- Cashflow analysis

- o CAPEX
- o Operation & maintenance (relative to before)
- Energy cost saving
- o Cashflow per year
- o Accumulated cashflow
- Investment motivation:
 - A description of why this project must be carried out and what are the drivers (besides energy and CO2 savings it could be improvements in the operation like reduced maintenance, reduced down time etc.).
- Investment Description:
 - A summery of what shall be done (on site works, changes in operation etc.)



- Time Schedule:

- High level time schedule
- Investment Risk:
 - This section covers a series of main risks related to the project and how these are handled.
- The risks may affect:
 - o Quality and performance
 - Expected energy savings and CO2 emission reductions
 - Financial benefit
 - Time schedule
 - o Sensitivity analysis
- Project Organization:
 - $_{\odot}$ $\,$ How the project is thought to be carried out and what it means for the organization.

10 Dissemination seminar

The results of the pre-feasibility studies will be presented at a two-day dissemination seminar by local consultant, international consultant and the enterprises themselves.

11 Staffing

The staffing of LC shall be experienced in industrial process industry and shall include the following:

We are looking for an energy consultant who has experience from industrial processes. Which means improving energy efficiency in the industrial processes themselves, in addition to utility systems. Experience from the following subsector is preferred: cement, food & beverage, pulp & paper or from subsectors with similar installations.

In the mentioned subsectors, the following must be carried out:

- 1. Audit of three to four enterprises
 - On site registrations and measurements
 - Data collection and data analysis
 - Development of ideas for proposals for improvement of energy efficiency and reducing CO2 emissions
 - Reporting in English and Bahasa
- 2. Pre-feasibility study of selected proposals including:
 - Technical solution
 - Calculation on the investment capex
 - Savings in energy, CO2 emissions
 - Additional benefits or disadvantages
 - Annual financial impact opex
 - Implementation plan
 - Project risks
 - Reporting in English and Bahasa

3. Dissemination of findings in a seminar



Following information must be submitted:

- A brief company description
- A list with relevant references from the last five year
- A brief description the service provided in a few of the most relevant references.
- CVs of the employees that will be allocated to the assignment".

Qualifications and skills required.

- The team leader should have a degree in engineering and at least 10 years of experience in energy efficiency and in energy auditing industrial process industry.
- A junior consultant should have a degree in engineering and good experience and strong knowledge on thermodynamic, energy efficiency in industry, data collection and analysis.
- A junior consultant should have a degree in engineering and good experience and strong knowledge on electrical installations, energy efficiency in industry, data collection and analysis.

One or more of the LC team shall be fluent English speaking and writing. All communication with VM shall be in English. LC shall both facilitate and interpret during site visits and translate the final documents into Bahasa.

12 Time schedule

The energy audits shall be conducted in the second half of 2022 in line with the following time schedule:

-	March - April 2024	Site Visits
-	April – May 2024	Energy audit reports submitted to IC
-	June – July2024	Pre-feasibility study
-	August 2024	Investment reports submitted to IC
-	September 2024	Dissemination of the ourtcome to relevat stakeholders

13 Fee

For the assignment a maximum fee of

45,000 DKK per facility for energy audit 45,000 DKK for pre-feasibility study including investment report 8,500 DKK for expenses <u>1.500 DKK participation in dissemination*</u>) 100,000 DKK in total per facility

can be accepted. This includes participation in dissemination workshop. With today's exchange rate of 0,0044 it is equal to approximately 228,000,000 IDR.

In total 10 facilities will be shared between three LS's.

*) A contract will cover three facilities meaning 4,500 DKK in total for dissemination of findings in a seminar

The contract shall be in DKK or EUR.

14 Quotation

The quotation shall cover the following information:

- Budget split into:
 - Manhours energy Audit



- Manhours analysis and reporting
- o Other costs
- Staffing including CVs with relevant experience to this assignment.
- Brief description of how the assignment will be performed based on this ToR.
- A few references of industrial energy auditing and of work with the sugar industry

No overrun of the maximum fee can be tolerated. The quotation will be evaluated according to the qualification of the company and of the proposed staffing and of the brief description of the outcome of the assignment.

15 Submission

Please submit your application to Christina Aprilia (<u>caprilia@indodepp.com</u>) and cc to Nadeem Niwaz (<u>nni@ens.dk</u>) and Peter Kristensen (<u>pkr@viegandmaagoe.dk</u>).

16 Points of Contact

The Embassy of Denmark

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