

Note: Two international experts had been pre-identified for this work, a senior person with broader sector expertise (Consultant 1) and a bagasse cogeneration specialist (Consultant 2). The TOR attempts not only to describe the overall tasks but to delineate the responsibilities of each.

Biomass Cogeneration Projects Preparation Terms of Reference

Introduction and Background

<Brief description of objectives and scope of Bank project being prepared and of biomass energy component. Overview of potential and status of sector/applikcation development and use. General comments on respective responsibilities of each of two main consultants.>

Objective

1. The objective of the services to be provided by this TOR is to guide the biomass project preparation activities efficiently through all of the steps necessary, plus assist in the documentation required to ultimately bring two projects to financial closure for financing under the Bank project. It is the intent of this TOR to build on the biomass project data base already existing in the country, and to seek new project options only as necessary.

Scope of Work

2 The consultants will work with the contractual terms and pricing as defined in power purchase agreements with the buyers. The consultants will assist the project developers evaluate the potential of low, intermediate, and high tech project options and to select the optimum project development approach for the initial projects considering risk versus potential for return. The consultants work will take place in the country or consultants home office.

3. The consultants will perform Tasks 1 through 8 under this TOR. These are:

- Task 1 - Development of Screening Criteria and Establishment of Institutional Linkages;
 - Task 2 - Project Screening;
 - Task 3 - Site Analysis;
 - Task 4 - Project Evaluation and Definition;
 - Task 5 - Preparation of Pre-Investment Study Reports;
 - Task 6 - Biomass Cogeneration Implementation Strategy;
 - Task 7 - Coordinate with Project Developer and the Utility; and
 - Task 8 - Preparation of Follow-up Plans.
- Task 9, Preparation of Bankable Projects will be conducted under a separate TOR to be issued once Tasks 1 to 8 have been successfully concluded.

Task 1 - Development of Screening Criteria and Establishment of Institutional Linkages

4. The consultants will develop a set of quantitative and qualitative project screening criteria for submission for approval by the World Bank TM prior to departing for the field. The screening criteria must be thorough and cover all aspects from the fuel resource side, developer interest and capabilities, grid access and load flow conditions, plus the normal technical, financial/economic, institutional, and environmental aspects normally considered for such screening activities.

5. The consultants will establish the institutional linkages necessary for carrying out the tasks and for a successful implementation of the projects. The initial linkages would include: the designated staff at the World Bank Country Office appropriate the Utility operational units, relevant government ministries, and the societies and associations representing the sugar and palm oil industries. Prior to starting the actual project screening activities in-country, the consultants will submit to the World Bank a written description of the institutional coordination plan including the identification of the institutional work center for the project preparation activity.

Task 2 - Project Screening

6. The consultants will work with the existing data base to review all sugar and palm oil industry project case studies already completed. Meetings will be held initially with the sugar and palm oil industry associations, and then with appropriate sugar and palm oil company management in the capital city, followed by telephone meetings with sugar and palm oil companies in the field. From these meetings and telephone discussions, a list of up to ten potential sites for initial field evaluation will be derived based on preliminary use of the screening criteria.

7. The final activity under this task will be the scheduling of the field work accompanied by the assignment of the mission personnel to individually cover the field visits in the most efficient manner, plus arranging for industry counterpart participation at each site to be visited. It is anticipated that parallel field visits would be made under the direction of Consultant 1, with appropriate GOI counterparts assigned to each field visit, if possible.

Task 3 - Site Analysis

8. The site analysis will follow the screening criteria format in great detail, and in addition, the three technical options (i.e., low, intermediate, and high tech) to be considered will be evaluated using the same technical and financial analysis computer models such that multiple individuals may evaluate sites on a comparable basis. The consultants will take special care in evaluating the appropriateness and firmness of supply for alternative/supplementary fuels in cases which consider year round operations. Combining company management meetings with the site evaluations will be used to make a determination of the need for third party technical and/or financial participation in each case.

9. The results of the site analyses will then be reviewed and ranked with the appropriate counterparts and the World Bank TM, with a list of the top five produced for further action in the project preparation cycle.

Task 4 - Project Evaluation and Definition

10. The consultants would work with counterparts and local consultants to conduct a more in-depth evaluation on the five priority projects identified. If necessary, return visits to specific sites would be set-up and conducted by Consultant 2, to address any unresolved issues. In this task, the greenhouse gas mitigation impact will be considered, along with the scheduling realities to implement the specific project, and ownership, financing, and other project development issues. The financial analysis for this task will consider the impacts of the terms and pricing of the Utility PPA, along with the realities of loan terms and interest rates in the Indonesian financial markets.

11. The result of this task will be the collection of sufficient data and information such that a very thorough Pre-Investment Study Report can be prepared for each priority site with a high degree of confidence. For this task, the consultants will be prepared to participate in a public forum with the Utility, sugar and palm oil industry representatives, and representatives from other appropriate public and private entities to promote the overall project concept and to identify key issues.

Task 5 - Preparation of Pre-Investment Study Reports

12. Back in the home office the consultants will prepare Pre-Investment Reports for up to 5 prioritized sites. The Pre-Investment reports must be thorough, and should provide a solid basis for the project documentation needed for project financial closing.

Task 6 - Biomass Cogeneration Implementation Strategy

14. Consultant 1 will develop a plan for broader development and promotion of biomass cogeneration and define the necessary technical assistance (TA) and promotional activities required. Proposed institutional arrangements to implement the strategy will be described along with the assignments and roles of each of the cooperating institutions. Sample Terms of Reference and Scopes of Work for the tasks to be implemented will be prepared, as well as descriptions of the qualifications required of any proposed consultants, and cost estimates for the proposed activities. Based on the work in Task 6, a report describing the Biomass Cogeneration Implementation Strategy will be prepared.

Task 7 - Coordinate with Project Developer and the Utility

13. With authorization from the World Bank TM, Consultant 1 will return to Indonesia to discuss the details of each project with the potential project developer(s), and then, along with the potential project developer(s) present each project to the Utility with the goal of obtaining a "Letter of Intent" from the Utility to buy electricity under the appropriate PPA terms. Each Project Developer would then prepare a Letter of Intent to seek Bank assistance in the implementation of the proposed project.

Task 8 - Preparation of Follow-up Plans

14. Consultant 1 will assist each Project Developer prepare the final project plan including a) identification of the project milestones; b) preparation of the detailed schedule; c) definition of any gaps or additional study requirements for the project developer; d) definition of the complete project documentation requirements; and e) definition of the interim finance needs to reach closure.

Task 9 - Preparation of Bankable Projects

17. In Task 9, for at least two projects, the consultants will assist the owner/developer in moving the project to financial closure under the Bank project. While the bulk of the feasibility study work will be undertaken by the owner/developer, the consultant will provide guidance as well as substantive inputs where required to ensure that the project is fully prepared. Additionally, the consultant may be required to assist the owner/developer through the application and approval process under the Bank project. A report comprising the Detailed Feasibility Study, tender documents, financing plan, LOI, and loan application will be prepared for each of the two projects.

Management and Reporting Requirements

15. The reporting requirements detailed in the tasks above will be coordinated directly with the World Bank TM.

Consultant Time Allocation

16. The number of days allocated by task and the location of the work is estimated as follows:

| <u>Task</u> | <u>Consultant 1 Days</u> | <u>Consultant 2 Days</u> | <u>Location</u> |
|------------------------------|------------------------------|------------------------------|-----------------|
| Task 1 | 3 | 0 | home |
| Task 2 | 6 | 6 | field |
| Task 3 | 6 | 6 | field |
| Task 4 | 6 | 6 | field |
| Task 5 | 10 | 10 | home |
| Task 6 | 3 | 0 | home |
| Task 7 | 6 | 0 | field |
| Task 8 | 6 | 0 | field |
| Task 9 | To be Determined | | field/home |
| Number of Trips to Indonesia | 2 | 1 | |
| Travel Days | 4 | 2 | |
| Total Days | 50 | 30 | |
| Days in Field | 30 | 18 | |

17. The consultants will be required to complete additional work including Task 9, Preparation of Bankable Projects as a continuance to the work completed under this consultancy. Specific requirements for continued work will be identified and additional consultant services will be defined and negotiated under a separate consultancy agreement on an as needed basis.

Schedule

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|---|--|
| a) Task 1 - Criteria to be used for initial screening of projects. | Day 1 (of first field mission) |
| b) Task 1- Note on institutional arrangements, the plan for carrying out the scope of work, and the schedule for biomass power project preparation | Day 4 |
| c) Task 5 - Pre-feasibility study reports for the five projects | 2 months later |
| d) Task 6 - Biomass Cogeneration Implementation Strategy | 2 weeks later |
| e) Task 8 - Project development plan, TORs, etc. for the five biomass projects. | 2 months later |
| f) Task 7 - Letter of Intent between the Utility and the project owner/developer for five biomass energy projects. | To be provided as soon as the LOI is ready, but not later than 3 months after Task 8 |
| g) Task 9 - Bankable project documentation for two projects (e.g., Feasibility Study, tender documents, financing plan, LOI, and loan application). | 6 months later |

Mission Schedule

19. At least two missions to the country are anticipated under this TOR:

- Pre-feasibility studies and Biomass Project Implementation Strategy development - XXXX
- Planning the preparation of the detailed project reports and associated project documentation, and LOI status review - Four months later

An additional mission for task 9 is also anticipated to prepare the bankable projects and associated project documentation in three months later

Estimated Budget: \$250,000