

OUTLINE TERMS OF REFERENCE FOR CONSULTING SERVICES

a. Preparation of Technical Specifications and Bidding Documents

1. The consultant will prepare a conceptual design of both Sirajganj and Khulna peaking power plants and preparation of bidding documents. The consulting services will include, but not be limited to the following:

- (i) Determine the detailed scope of work for Sirajganj and Khulna peaking power plant;
- (ii) Prepare a detailed layout dividing the total site into main salient sub-areas, viz. plant area, residential area, common service area etc. along with approach and internal roads, jetty, etc.;
- (iii) Survey the gas line route and the transmission line route to determine the point of tapping for gas supply and to make a power evacuation plan;
- (iv) Establish design criteria for (i) foundation and civil design, (ii) performance specification for electrical and mechanical systems, and (iii) environmental requirements;
- (v) Prepare technical specifications and performance specifications for the power plant, major equipment, auxiliaries, transmission lines, and gas pipe lines; and
- (vi) Prepare bidding documents for each power plant as per approved engineering reports, technical specifications, performance specifications, schedules, and drawings for bidding of the power plant on a turn-key basis.

b. Support in the Bidding Process

2. The consultant will review BPDB/NWPGC's approach and schedule for the bidding process and provide comments and recommendations on the approach, activities, schedule, organization, and responsibilities. The consultant will assist BPDB through the bidding process including the following activities.

- (i) Assist BPDB/NWPDC in clarifying queries from prospective bidders during the bidding period;
- (ii) Carry out technical and financial evaluation of bids received and submit bid evaluation reports to BPDB/NWPDC; and
- (iii) Assist BPDB/NWPDC in contract negotiations and finalize the contract documents.

c. Construction Supervision

3. The main turnkey contracts would cover construction of most of the power plant facilities. The consultant will provide oversight of all aspects of the construction in order to assure that it is conducted properly. This includes assisting in developing and implementing a quality assurance program for construction, review and approval of design, monitoring schedule, inspection of materials upon arrival and upon erection, review of documents to assure quality of delivered goods, comparison of as-built drawings to design, and addressing shortcomings in any of these areas.

d. Testing and Commissioning

4. Nearly all of the main components of the facility will be subject to an acceptance test to demonstrate their capability to meet warranted design criteria. For each component subject to test, the consultant will review the contractor's test procedures for compliance with manufacturers' requirements and design criteria. The consultant will witness the tests and

review the test results. If test results are not satisfactory, the consultant will require that the problem causing failure is addressed and that the equipment be re-tested.

5. When the power plant is to generate power, BPDB/NWPGC will initiate operational activities. The contractor will provide training on the operation of the power plant and all its systems. The consultant will assist BPDB/NWPGC in this phase of the project and coordinate with the contractors in addressing any issues with the facilities that affect operation adversely. At the end of this period, and when all acceptance tests have been completed to the consultant's satisfaction, the consultant will advise BPDB/NWPGC that the construction is complete and the facility is ready to be declared fully operational.

6. The consultant will also prepare and recommend a provisional taking over certificate whenever due for the works of the contractor and alert BPDB/NWPGC of work deficiencies, if any. The consultant will also confirm the remedial measures taken by the contractor, and recommend a final taking over certificate after expiry of the warranty period.

Estimated Person-Months

7. It is expected that about 34 person-months of international consulting services will be needed from a firm specializing in construction supervision from technical specification through commissioning, with consultants expert in mechanical and electrical equipment, civil structures, environmental, and commissioning. The consultant will be supported by about 72 person-months of national consulting services with expertise in similar areas. Table 1 shows the indicative positions and their person-months.

Table 1: Indicative Positions and Person-Months

Particular	International Consultants	National Consultants
Team Leader/Mechanical Engineer	14 PM	30 PM
Electrical Engineer	12 PM	24 PM
Instrument Engineer	3 PM	6 PM
Civil Engineer	2 PM	8 PM
Environmental Engineer	1 PM	2 PM
Commissioning Engineer	2 PM	2 PM
Total	34 PM	72 PM

PM = person-months.