



Technical Assistance Report

Project Number: 41125
July 2007

People's Republic of Bangladesh: Tendering Process for Independent Power Producer Plants

CURRENCY EQUIVALENTS

(as of 17 May 2007)

Currency Unit	–	taka (Tk)
Tk1.00	=	\$0.0145
\$1.00	=	Tk69.005

ABBREVIATIONS

ADB	–	Asian Development Bank
BOO	–	build-own-operate
BPDB	–	Bangladesh Power Development Board
EA	–	Executing Agency
IPP	–	independent power producer
MW	–	megawatt (1,000 kilowatts)
RFP	–	request for proposals
TA	–	technical assistance

TECHNICAL ASSISTANCE CLASSIFICATION

Targeting Classification	–	General intervention
Sector	–	Energy
Subsector	–	Conventional energy generation (other than hydropower)
Theme	–	Private sector development, sustainable economic growth
Subtheme	–	Private sector investment, fostering physical infrastructure development

NOTE

In this report, "\$" refers to US dollars.

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I. INTRODUCTION

1. The Government of Bangladesh requested the Asian Development Bank (ADB) in April 2007 to provide assistance in selecting private sector developers for establishing two clean-fuel power generating plants on a build-own-operate (BOO) basis. These would be (i) a 450 megawatt (MW) gas-fired combined cycle power plant at Sirajganj and (ii) a 450 MW gas-fired combined cycle power plant at Meghnaghat Phase-3. ADB conducted a mission during 8–10 May 2007 and reached an understanding with the Government on the impact, outcome, outputs, cost estimates, financing, implementation arrangements, and consultant terms of reference for the proposed technical assistance (TA).¹

II. ISSUES

2. Although Bangladesh has performed generally well on the macroeconomic front over the past decade, inadequate electricity supply has been a major constraint on economic growth and poverty reduction. The electrification ratio is still very low, as only about 40% of the population has access to electricity. Per capita annual generation of only about 172 kilowatt-hours is among the lowest in the world. The country's current dependable generating capacity is 4,120 MW, while peak demand is about 5,000 MW. This has resulted in frequent power cuts and load shedding, and this trend is expected to continue in the near future. Erratic power supply tends to increase consumers' unwillingness to pay their bills, and that leads to shortages of funds for maintenance. This, in turn, causes supply interruptions to industry and residences, hampers commercial activity, and jeopardizes public safety. Promoting sustainable economic growth by providing reliable power supply is the main strategic pillar for reducing poverty in ADB's Country Strategy and Program for 2006–2010.

3. While abundant water flows in the Jamuna-Padma-Meghna river system, hydropower potential is limited because of the flat terrain. Coal reserves, located in the northwest, are deep beneath the surface and difficult to develop. One potential mine with a limited output of about 1 million tons per annum has been developed with external assistance to feed 2x125 MW power plants, and a study is being undertaken to review the feasibility of developing another coal mine in the northwest. The country's entire proven recoverable reserves of oil (including condensate) are estimated at 59 million barrels. Although Bangladesh has had some successes in small-scale development of renewable resources, these are peripheral to the issue of generating bulk electricity for the main grid. Bangladesh is, however, well endowed with natural gas, which is the only significant source of commercial energy in Bangladesh. At present, about 85% of the power generation capacity in the country is gas based, 10% is based on imported fuel, and 5% is hydro. In terms of energy generated, about 90% of the total in fiscal year 2005 was from gas-fired power plants. Present gas reserves and production are considered adequate to serve the existing power plants, and it is highly probable that additional reserves could be developed to serve the needs of those power plants projected until 2025.

4. Over the last 10 years, consumption of electricity in Bangladesh has grown at a compound annual rate of 8.1%, and it is expected that demand for electricity will grow at an annual rate of about 8.0% for the next 10 years. The ADB-funded power system master plan update projected that a total capacity expansion of 17,900 MW would be necessary through 2025, of which 3,500 MW would be needed by 2010.

¹ The TA first appeared in *ADB Business Opportunities* on 29 May 2007.

5. As the Government realized that the investment requirements of the power sector would exceed the resources available in the public sector and could crowd out investment in other key sectors, it adopted a policy decision in 1994 to invite private sector participation in generation. This was followed by a private sector generation policy in 1996. The Government made efforts to streamline its administrative and commercial procedures, and the private sector responded favorably. As a result, Bangladesh was successful until the late 1990s in attracting the private sector, and particularly in generation (where ADB played a catalytic role). Since introducing the private sector generation policy, new capacity totaling 1,290 MW (a total of seven plants) has so far been established by independent power producers (IPPs), which presently produce about 38% of the total national generation. ADB recently evaluated its power sector assistance program² in Bangladesh and recognized that the IPP project, in which ADB provided assistance in selecting a private sector sponsor, has been operating successfully and producing power at reasonable cost to Bangladesh Power Development Board (BPDB) with a high level of reliability.

6. Despite past success, Bangladesh, like many other developing countries, has recently been facing difficulties in mobilizing further private capital for expanding power generating capacity. A worldwide trend shows that private investors' interest in IPPs in developing countries has fallen off, and the number and value of transactions sponsored by these investors are well below their peak of the late 1990s. Coupled with the declining interest of private investors in IPPs in developing countries, perceived irregularities in procurement procedures aggravated the situation in Bangladesh. As a result, several attempts to award contracts for new IPP projects in the last few years failed. .

7. Recognizing this, the Government issued new public procurement regulations in 2003 that are consistent with international procurement practices in order to enhance accountability, transparency, and fairness in public procurement transactions for all sectors including the power sector. Moreover, the Public Procurement Act was passed by Parliament in 2006. The World Bank is now providing assistance to the Government in implementing the new law, aiming at enhanced transparency and efficiency in overall public procurement transactions for both government and bidders. As it will take some time for these positive effects to appear, urgent assistance is needed to carry out selection of sponsors for IPP projects under the present procurement regulations in a way that instills confidence in potential investors.

8. In December 2006, ADB approved TA4898-BAN³ to facilitate further private sector investments or public-private partnership financing for power sector projects in a flexible, efficient, and transparent manner, thereby contributing to enhanced and sustainable electric power supply in Bangladesh. TA4898-BAN will also help the Government to formulate the private sector participation policy and enforceable regulations tailored to the local market environment. While TA4898-BAN will address the bottlenecks in the policy and regulatory framework, the proposed TA is expected to help ensure transparency and fairness in the tendering process for the two power generating plants. That should attract more competitive bids from intended private sector developers based on the existing private sector power generation policy and procurement procedures. In parallel with the assistance of other development partners, the TA will underpin efficiency and transparency in procuring future similar projects by strengthening technical specifications, improving bidding documents, and adopting best international practices and experience.

² ADB. 2004. *Sector Assistance Program Evaluation of Asian Development Bank Assistance to Bangladesh Power Sector*. Manila.

³ ADB. 2006. *Technical Assistance to Bangladesh for the Promotion of Private Sector Participation in the Power Sector*. Manila.

III. THE TECHNICAL ASSISTANCE

A. Impact and Outcome

9. The TA is expected to contribute to sustained economic growth in Bangladesh by providing increased capacity and reliable power supply at an affordable price. The outcome of the proposed TA will be development of the 450 MW Sirajganj clean-fuel combined cycle power generating plant and 450 MW Meghnaghat Phase-3 combined cycle power generating plant by private sector sponsors for commissioning by 2010 on a BOO basis. The TA will assist the Government in the tendering process for selecting private sector sponsors for these two power generating plants through a transparent international competitive bidding process. The design and monitoring framework is provided in Appendix 1.

B. Methodology and Key Activities

10. The tendering process will be conducted in two phases: (i) prequalification and (ii) main bidding. The purpose of prequalification is to identify qualified firms based on an examination of their experience in establishing, operating, and maintaining large-scale power plants, as well as their capability to raise the necessary equity and limited recourse financing. The result of this work will be a list of firms with the qualifying experience and ability to execute the power generating plants, and only those qualified firms will be invited to submit proposals in the main bidding process. The main bidding process will involve soliciting and evaluating technical and commercial offers from qualified firms, then preparing project agreements (the Project Agreements) that include a power purchase agreement, gas supply agreement, land lease agreement, and implementation agreement for each power plant to be signed among the Government, BPDB,⁴ and the private sector sponsors. Given the relatively small volume of work and the nature of prequalification work that does not require a team of experts and extra support from the consultant's home office, and taking into account the urgency of commencing the consulting services, ADB will assist the Government by providing specialized expert knowledge and advice for the prequalification stage.

11. A single-stage, two-envelope bidding procedure will be adopted for the main bidding process, wherein the bidders will submit simultaneously two sealed envelopes: one containing the technical proposal and the other the price proposal. The price proposal will be in the form of the bidder's respective guaranteed two-part tariffs for the sale of electricity from the power plants to BPDB under the power purchase agreement. Initially, only the technical proposals will be opened in public at the date and time advised in the request for proposals (RFP) in the presence of those bidders who choose to attend. The price proposals will remain sealed and be held in custody of the executing agency (EA). Following completion of the technical evaluation, and at a date and time advised by the EA, the price proposals of the technically responsive bidders will be publicly opened in the presence of those bidders who choose to attend. The price proposals of the technically non-responsive bidders will be returned unopened. Only the price proposals of the technically responsive bidders will be evaluated and the contract will be awarded to the lowest evaluated substantially responsive bidder.

12. As the Government and the power sector entities have extensive experience from past tendering processes for large IPP power generating plants, the EA has already drafted

⁴ BPDB has been designated by the Government as the single buyer of electricity in the country.

prequalification documents, and it will also draft technical specifications, the RFP, and the Project Agreements in collaboration with all agencies concerned.

13. The TA will assist the EA during the main bidding in (i) finalizing the RFP to invite technical and price proposals for implementing the project on a BOO basis, (ii) issuing RFP documents and publishing the RFP notice, (iii) conducting pre-bid meetings and responding to bidders' queries on the RFP, (iv) evaluating technical and price proposals, (v) finalizing the content of the Project Agreements, and (vi) negotiating contracts with the selected bidders.

C. Cost and Financing

14. The total cost of the TA is estimated at \$750,000 equivalent. ADB will finance \$600,000 equivalent on a grant basis through ADB's TA funding program. The Government will finance the remaining \$150,000 equivalent in costs through in-kind provision of administrative needs, including office accommodation, data compilation, logistical office equipment, and counterpart staff. A detailed cost estimate and financing plan are provided in Appendix 2.

D. Implementation Arrangements

15. The EA will be the Power Cell of the Ministry of Power, Energy, and Mineral Resources. BPDB will give technical support to the Power Cell by providing technical advice, data, and suggestions to the consultants to be recruited under the TA. While providing logistical support and coordination with various stakeholders, the Power Cell has designated a project director and set up a project coordination committee headed by the Director General of the Power Cell to supervise implementation of the TA. The project coordination committee consists of high-level officials representing the EA, the Power Cell, and other agencies concerned (including BPDB, Power Grid Company of Bangladesh Limited, and Petrobangla). The committee will discuss the outputs of the TA and provide feedback and guidance to the consultants. In particular, the content of the land lease and the power purchase agreements will be vetted by BPDB and that of the gas supply agreement by Petrobangla before the RFP is issued, as BPDB will be the off-taker of the electricity generated from the Project and Petrobangla will supply gas to the Project. The Power Cell will assume the secretariat function of the project coordination committee. ADB will have the right at any time to scrutinize the tendering process.

16. The EA will provide for the consultants office accommodation and facilities, internet access, secretarial support, and land transportation within Bangladesh. The EA will also provide the consultants with existing data, preliminary analysis as well as the draft prequalification documents and RFP. The consultants will incorporate the lessons learned from past similar TA of ADB and other development partners in the power sector. The consultants will be accountable to both ADB and the EA.

17. The TA will require about 10 person-months of international and 15 person-months of national consulting services. Appendix 3 provides outline terms of reference for the consultants. The TA will be implemented over a period of 9 months from September 2007 to May 2008. ADB will engage a consulting firm or consortium of firms in accordance with its guidelines.⁵ Consultants will be recruited under quality and cost-based selection procedures, and simplified technical proposals will be requested.

⁵ ADB. 2007. *Guidelines on the Use of Consultants by ADB and Its Borrowers*. Manila.

18. The consultants will submit the final RFP to ADB and the EA within 1 month of commencing the consultancy services. It shall include details on the process for bid evaluation and negotiations, as well as the Project Agreements. All of this will be reviewed in a tripartite meeting to be held in Dhaka and attended by the EA, ADB, and consultants. The consultants will also submit the technical evaluation report to ADB and the EA within 1 month from opening of the technical proposals and the price evaluation report within 1 month from opening of the price proposals. Before fielding of the consultants in Dhaka, the EA will provide the consultants all the documents produced during the prequalification stage, including prequalification documents and clarifications, the prequalification application submitted by the bidders, and the prequalification evaluation report.

IV. THE PRESIDENT'S DECISION

19. The President, acting under the authority delegated by the Board, has approved the provision of technical assistance not exceeding the equivalent of \$600,000 on a grant basis to the Government of Bangladesh for Tendering Process for Independent Power Producer Plants, and hereby reports this action to the Board.

DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions and Risks
Impact Increased capacity and reliable power supply at least cost, contributing to sustained economic growth	<ul style="list-style-type: none"> • Access to electricity from present 38% to 60% of national population by 2015 • No load shedding by 2015 • Gross domestic product increases maintained on a sustainable basis 	<ul style="list-style-type: none"> • Government economic statistics and reports • National statistics on power supply 	Assumptions <ul style="list-style-type: none"> • Political and socioeconomic conditions remain stable • Stable economic growth in the region
Outcome Development of a total 900 megawatt (MW) of clean energy power plants by private sector developers on a build-own-operate (BOO) basis to supply electricity at an affordable price	<ul style="list-style-type: none"> • Addition of 450 MW clean-fuel combined cycle power plant at Sirajganj by 2010 • Addition of 450 MW clean-fuel combined cycle power plant at Meghnaghat Phase-3 by 2010 	<ul style="list-style-type: none"> • Operation and performance reports of power sector entities • Annual reports of power sector entities 	Assumptions <ul style="list-style-type: none"> • Ongoing government and private sector commitment and resources to invest in new power generation • Availability of clean gas at an appropriate price
Outputs Contract with selected private sector sponsors for developing 450 MW Sirajganj and 450 MW Meghnaghat Phase-3 gas-fired combined cycle power plants on a BOO basis	<ul style="list-style-type: none"> • Selection of private sector sponsors for developing the power plants on a BOO basis by April 2008 • Signing of project agreements with the selected sponsors for developing the power plants by May 2008 	<ul style="list-style-type: none"> • Associated assessments, reports, and review missions • Consultants' progress reports • ADB progress reports 	Assumptions <ul style="list-style-type: none"> • Data is available and capable consultants are recruited • Timely approval of the consultants' recommendations by the Government Risks <ul style="list-style-type: none"> • Delays in recruiting consultants and consultancy services • Government delays in preparing draft prequalification documents and RFP
Activities with Milestones <ol style="list-style-type: none"> 1.1 Consultants engaged and mobilized by 31 August 2007 1.2 Executing Agency prepares draft request for proposals (RFP) by 31 August 2007 1.3 Consultants submit comments on the draft RFP by 30 September 2007 1.4 Executing Agency issues RFP by 15 October 2007 1.5 Proposal submission closes and technical proposals opened by 15 January 2008 1.6 Consultants submit technical bid evaluation report by 15 February 2008 1.7 Government approves technical evaluation by 28 February 2008 1.8 Price proposals opened by 1 March 2008 1.9 Consultants submit price bid evaluation reports by 31 March 2008 1.10 Government approves price bid evaluation report by 15 April 2008 1.11 Government and selected sponsors sign project agreements by 15 May 2008 			Inputs ADB: \$600,000 Government: \$150,000 equivalent of in-kind contribution

BOO = build-own-operate, MW = megawatt, RFP = request for proposals.

COST ESTIMATES AND FINANCING PLAN
(\$'000)

Item	Total Cost
A. Asian Development Bank Financing	
1. Consultants	
a. Remuneration and Per Diem	
i. International Consultants ^a	300.0
ii. National Consultants ^b	90.0
b. International Travel	70.0
c. Reports and Communications	20.0
d. Legal Counseling	30.0
2. Representative for Contract Negotiations	6.0
3. Contingencies	84.0
Subtotal (A)	600.0
B. Government Financing	
1. Office Accommodation and Transport ^c	60.0
2. Remuneration and Per Diem of Counterpart Staff	30.0
3. Contingencies	60.0
Subtotal (B)	150.0
Total	750.0

^a Assuming 10 person-months of international consultants at \$30,000 per month.

^b Assuming 15 person-months of national consultants at \$6,000 per month.

^c Includes office facilities and local communications.

Source: Asian Development Bank estimates.

OUTLINE TERMS OF REFERENCE FOR CONSULTANTS

1. As part of the strategy to improve Bangladesh's power sector, the Government of Bangladesh took a decision to develop two units of 450 megawatt (MW) gas-fired combined cycle power plants to be commissioned by 2010 by private sector sponsors on a build-own-operate (BOO) basis. One unit is to be at Sirajganj and another unit at the Meghnaghat Phase-3 site. Asian Development Bank (ADB) has been requested by the Government to assist in selecting private sector sponsors for these power plant projects.

2. In close collaboration with the Power Cell of the Ministry of Power, Energy, and Mineral Resources and other relevant agencies, including Bangladesh Power Development Board and the project coordination committee to be established by the Power Cell, the consultants will undertake, but not be limited to, the following tasks:

A. International Consultants

1. Power Sector Development Expert, Team Leader (7 person-months)

- (i) Review and finalize the request for proposals (RFP), including the evaluation criteria and evaluation sheet for determining the substantial responsiveness of each proposal, taking into account the comments raised at the prequalification stage.
- (ii) Ensure that Bangladesh Power Development Board enters into appropriate contracts with the project sponsors, and, with support from financial and legal experts, consolidate review of content, logic and legal effect of the Project Agreements, which include the implementation, power purchase, fuel supply, and land lease agreements drafted by the Government and/or its agencies for inclusion in the RFP.
- (iii) Assist the Power Cell as necessary in issuing RFP documents and publishing the RFP notice.
- (iv) Assist the Power Cell in arranging and conducting a pre-bid meeting.
- (v) Prepare minutes of the pre-bid meeting.
- (vi) Assist the Power Cell in responding to queries on the RFP documents.
- (vii) Consolidate evaluation of technical and price proposals from legal, commercial, technical, and financial perspectives with support from legal, commercial, and financial experts, then recommend the lowest evaluated substantially responsive bidder for contract award.
- (viii) Assist in preparing the strategy for negotiating with the evaluated first-ranked bidder.
- (ix) Assist the Government in concluding negotiations with the selected bidder within a prearranged time frame, within the framework of the RFP while considering the specific deviations and/or expectations put forth by the bidder, and while keeping with accepted international norms.
- (x) Assist and advise the Government in preparing the final set of Project Agreements and make recommendations to the Government for execution.
- (xi) Prepare reports on agreements, as well as negotiating and position papers on any issues.
- (xii) Assist the Government in contract negotiations with the selected bidder.

2. Project Financing Expert (3 person-months)

- (i) Develop a computerized model for financial evaluation of the bids by comparing the financial and price offers of the various bidders, and analyze the impact of the offers on the bidder's own finances.
- (ii) Review the content of the Project Agreements, including the implementation, power purchase, fuel supply, and land lease agreements drafted by the Government and/or its agencies from a financial perspective and provide input to the team leader.
- (iii) Evaluate the proposals from financial points of view and provide input to the team leader.
- (iv) Review the commercial implications of the proposals received and provide input to the team leader.

B. National Consultants**1. Power Sector Development Expert (9 person-months)**

- (i) Assist the International Power Sector Development Expert to conduct all the tasks stated above, especially in collecting relevant data and information and consultations with various domestic stakeholders.

2. Legal Expert (3 person-months)

- (i) Review the content of the Project Agreements, including the implementation, power purchase, fuel supply, and land lease agreements drafted by the Government and/or its agencies from a legal perspective and provide input to the team leader.
- (ii) Evaluate the proposals from a legal perspective and provide input to the team leader.

3. Financial Expert (3 person-months)

- (i) Assist the International Project Financing Expert to conduct all the tasks stated above, especially in collecting relevant data and information and in consultations with various domestic stakeholders.