

## TERMS OF REFERENCE

### A. Background

1. The energy sector in Bangladesh performed poorly until the early 1990s. The major constraints in the sector were (i) lack of institutional capability; (ii) unavailability of long-term domestic capital for financing investments; (iii) limited foreign exchange availability; (iv) poor management systems and procedures; (v) low employee commitment; (vi) institutional weaknesses in governance; (vii) poor financial performance of sector entities resulting from poor governance and badly designed tariffs; and (viii) lack of power generation/transmission and gas production capacity resulting in shortages.

2. Asian Development Bank (ADB) assistance to the power sector in Bangladesh was suspended from 1989 to 1994 because of the government's reluctance to introduce power sector reforms. This led to the Government adopting a policy paper in 1994 entitled Power Sector Reforms in Bangladesh (PSRB) and ADB also assisted the government under the a technical assistance grant to prepare the Long Term Gas System Development Plan.<sup>1</sup> To improve the sector's performance, a "reforms-linked lending" strategy was adopted by international funding agencies.

3. The major sources of external funding for the Bangladesh power sector are ADB, World Bank, Japan Bank for International Cooperation, United Kingdom Department for International Development, Kreditanstalt für Wiederaufbau (KfW), and USAID. ADB has assisted generation, transmission, and distribution of power in urban and semi-urban areas.

4. ADB's Independent Evaluation Department (IED) intends to conduct a Sector Assistance Program Evaluation (SAPE) to review the performance of ADB's energy projects that have been completed in Bangladesh since 2003. The SAPE will address the following questions (i) Was ADB's strategy and program relevant to the development challenges facing the DMC? (ii) How and to what extent did ADB contribute to the major development objectives of the energy sector in Bangladesh, as stated in the country strategies? (iii) Was ADB's energy sector strategy and program aligned with national priorities? Were they well positioned given ADB's mandate and country competence, and were they harmonized with the assistance provided by other development partners? (iv) Was ADB's program, as delivered, consistent with its declared energy sector strategy and program? (v) Was ADB assistance (lending and nonlending) effective in achieving the desired objectives? If so, were these objectives achieved efficiently? (vi) Are the achievements sustainable over time? (vii) Did ADB assistance contribute to outcomes that will improve Bangladesh's energy sector performance and foster sustainable socioeconomic development?

5. In support of the SAPE two Project Performance Evaluation Reports (PPERs) will also be undertaken for the Third Natural Gas Development and the Ninth Power Projects. On 21 December 1993, ADB approved the Third Natural Gas Development Project for \$107.0 million equivalent. The Project had four parts corresponding to each of the four executing agencies. The scope of the Project included among others; (i) enhancing the gas production in Titas and Habiganj gas fields and installing gas treatment plants in these fields; (ii) increasing the gas transmission capacity to Dhaka and in North East Bangladesh; (iii) rehabilitation and expansion

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<sup>1</sup> ADB. 1993. Preparation of a Gas System Development Plan and the Strengthening of the Organizational and Regulatory Framework for the Oil and Gas Sector. Manila. (TA 2024-BAN approved for \$565,000 on 21 December).

of gas distribution networks in Dhaka; and (vi) gas system loss reduction program. The Project was closed on 23 October 2003 and the project completion report circulated in December 2005.

6. On 18 December 1996, ADB approved the Ninth Power Project. A major objective of the Ninth Power Project was to introduce power sector reform through corporatization of power sector entities on the basis of Power Sector Reform in Bangladesh (the Government's policy paper in 1994). The Project was also to facilitate the evacuation and utilization of the power generated from the Meghnaghat Power Plant. The Ninth Power had four major components that included (i) construction of around 130 kilometers (km) of 230 kilovolt transmission lines, construction of a substation and extension by two bays each of two substations; (ii) construction of a National Load Dispatch Center; (iii) construction of around 280 km of distribution systems, enhancement of distribution capacity by about 200 megavolt-amperes (MVA) and over 100,000 new consumer connections.; and (iv) engineering services for the gas-based West Zone Combined Cycle Power Project and the East Zone Open Cycle Peaking Power Projects. The loan was closed in July 2004 and the PCR was circulated to the Board in January 2007.

7. The two PPERs will assess the relevance, effectiveness, efficiency, sustainability, and other impacts of the Projects. There will be a project performance evaluation report produced for each project. They will focus on both the positive and negative aspects raised in ADB's Project Completion Reports, and identify lessons and follow-up actions for future ADB operations.

8. The evaluation team will consist of:

- (i) Team Leader for SAPE (Senior Evaluation Specialist from IED)
- (ii) Team Leader for PPERs (Evaluation Specialist from IED)
- (iii) Senior Evaluation Officer (from IED)
- (iv) International Consultant: Energy Sector Finance Specialist
- (v) International Consultant: PPER Specialist – Gas and Power
- (vi) Domestic Consultant – Gas Specialist
- (vii) Domestic Consultant – Power Specialist
- (viii) Domestic Survey Firm.

9. It is anticipated that the evaluation team will undertake a two week mission to Bangladesh in May 2009. Team member roles are as follows:

#### **B. Team Leader for SAPE– Senior Evaluation Specialist**

10. The team leader for SAPE will be responsible for the overall evaluation, and in this context will perform the following tasks:

- (i) Lead and provide approaches, methods, and guidance to the team for the preparation of the SAPE
- (ii) Ensure that the evaluation team follows the conceptual framework and methods for the evaluation, and devise emergent evaluation approaches as the need arises during the course of the evaluation
- (iii) Integrate the tasks of the team to meet the purpose and scope of the SAPE, managing international and domestic consultants
- (iv) Lead and promote discussions among team members to evaluate the relevance, effectiveness, efficiency, sustainability and impact of ADB's program assistance to Bangladesh's energy sector
- (v) Establish and maintain dialogue with key partners within ADB, including with staff of operational departments, the Regional and Sustainable Development Department, and the Strategy and Policy Department

- (vi) Establish contacts and dialogue with key external institutions to acquire information, exchange views, seek external experience and key lessons, and to identify trends, contemporary issues, and emerging challenges relevant to Bangladesh's energy sector.
- (vii) Provide guidance to the PPER consultants on the methodology for undertaking the economic and financial analysis of the PPERs.
- (viii) Together with team members conduct key interviews and focus group discussions with relevant stakeholders
- (ix) Facilitate key analytical processes and lead the synthesizing, interpreting and integrating evaluation findings
- (x) Lead the preparation of the SAPE report making use of contributions from team members.

### **C. Team Leader for PPERs – Evaluation Specialist**

11. In consultation with the team leader for SAPE, the PPER team leader will perform the following tasks:

- (i) Contribute to the refinement of the evaluation framework and the evaluation design matrix for the SAPE.
- (ii) Contribute to information gathering and analysis for the SAPE in assessing the relevance, effectiveness, efficiency, sustainability and impact of ADB's program assistance to Bangladesh's energy sector
- (iii) Lead and provide approaches, methods, and guidance to the team for the preparation of the two PPERs
- (iv) Ensure that the evaluation team follows the conceptual framework and methods for the PPERs, and devise emergent evaluation approaches as the need arises during the course of the evaluation
- (v) Integrate the tasks of the team to meet the purpose and scope of the PPERs, managing international and domestic consultants
- (vi) Lead and promote discussions among team members to evaluate the relevance, effectiveness, efficiency, sustainability and impact of ADB's two projects
- (vii) Establish and maintain dialogue with key partners within ADB, including with staff of operational departments, the Regional and Sustainable Development Department, and the Strategy and Policy Department
- (viii) Establish contacts and dialogue with key external institutions to acquire information, exchange views, seek external experience and key lessons
- (ix) Lead the preparation of the two PPER reports making use of contributions from team members.

### **D. Senior Evaluation Officer**

12. The senior evaluation officer will be based in ADB Headquarters and will be available to support the three evaluations on a part-time basis. In consultation with the team leaders, the senior evaluation officer will perform the following tasks:

- (i) Contribute to the refinement of the evaluation framework, the evaluation design matrix and approach paper in consultation with the team leader and other team members
- (ii) Collect, review and synthesize salient points of various documents and references related to Bangladesh's energy sector

- (iii) Undertake an updated assessment of the financial internal rate of return and economic internal rate of return for the two PPER evaluations in consultation with the team leader
- (iv) Contribute to the distillation of pertinent lessons learned from policy implementation, taking into account past and current issues
- (v) Provide desk research support as required for the SAPE and two PPERs
- (vi) Assist the team leader and deputy team leader in drafting and revising the SAPE and two PPERs
- (vii) Perform other tasks as required by the team leader

#### **E. International consultant: Energy Sector Specialist (2 person-months)**

13. The consultant will prepare a draft SAPE report updating the IED Power Sector SAPE prepared in 2003 and in this the consultant will expand on the work done on joint evaluation of power sector undertaken in 2008 with a greater focus on ADB's power sector operations. The consultant will review the gas sector in Bangladesh and prepare material to feed into the energy sector SAPE report including the financial aspects of the gas sector. In addition to the power sector related issues, the consultant will also examine the financial aspects of gas sector.

14. The detailed terms of reference are as follows:

- (i) Prepare a description of relevant domestic policies and institutional arrangements for the power sector in Bangladesh (1994 Power Sector Road Map, 2000 Vision and Policy Statement for Power Sector, 2006 Power Sector Road Map). The institutional overview should identify what are the entities responsible for sector strategy and policy, and regulation.
  - (a) How are the power generation, transmission and distribution organized in different parts of the country?
  - (b) What are the recent changes to sector entities
- (ii) Prepare a description of relevant domestic policies and institutional arrangements for the gas sector in Bangladesh. The institutional overview should identify what are the entities responsible for sector strategy and policy, sector regulation, gas field development and exploration of new resources, soliciting private sector investments, gas field operation, gas transmission pipelines and gas distribution.

15. The consultant should prepare a summary of arrangements prior to 2003 with a more detailed description of changes since 2003.

- (i) Report on the importance of the power sector to Bangladesh energy security and overall economy (i.e., impacts on industrial sector competitiveness, fossil fuel imports, fiscal impacts if any and balance of payments). Comment upon how the increased availability of power to the socio economic development of the country. Importance of reliable and affordable power and gas supply for industrial competitiveness. In this respect the consultant should address following questions:
  - (a) Prevalence of fiscal subsidies and how these subsidies are currently financed. The economic impacts of cross subsidies through gas pricing, bank overdrafts and direct fiscal transfers.
  - (b) Highlight the overall objective/expected impact of power sector development in the context of socio economic development plan/poverty reduction strategy of Bangladesh and ADB's Country Strategy and Program (CSP).

- (ii) Report on the importance of the natural gas sector to Bangladesh energy security and overall economy (i.e., impacts on industrial sector competitiveness, fossil fuel imports, fiscal impacts if any and balance of payments). Comment upon how the increased availability of natural gas has contributed to the socio economic development of the country. In this respect the consultant should address following questions:
- (a) Who are the major users of gas (i.e., power sector, industry, households)?
  - (b) Highlight the overall objective/expected impact of gas sector development in the context of socio economic development plan/poverty reduction strategy of Bangladesh and ADB's CSP
- (iii) The consultant will identify the government policies with respect to following issues and progress in implementing relevant government policies and ADB's contribution for policy making and policy implementation through its loans, TAs and policy dialogue.
- (a) Weak corporate governance and technical performance of power sector entities and the progress in corporatization sector reforms.
  - (b) Prevalence of load shedding due to inadequate power generation capacity and the measures taken to increase investments in power generation through public sector investments.
  - (c) Review the incentive structure and the solicitation process for private sector investments in power generation.
  - (d) Weak Financial Performance of the Power Sector as a whole and Bangladesh Power Development Board (BPDB) and Dhaka Electric Supply Company (DESCO) in particular. Comment on the financial performance of power sector as a whole and key entities (i.e., BPDB, Dhaka Electric Supply Authority, DESCO, West Zone Power Distribution Company Limited, Power Grid Company of Bangladesh, etc.) since 2003. What are the main reasons for weak financial performance of the sector entities?
  - (e) What is the relationship between weak sector governance and financial losses? (i.e., high level of receivables and bad debts, public sector dues to power sector, power sector dues to state owned banks and fuel suppliers, electricity theft and non-technical losses)
  - (f) Badly designed tariff structure. Comment on the end user tariffs and transfer tariffs among the sector entities.
  - (g) Need for mobilizing financial resources to meet the projected demand growth up to 2020. What is the investment requirement of different sub sectors of power sector and what is the self financing and borrowing capacity of the sector? What are the likely sources of financing (DFI financing, retained earnings, domestic banks, private sector, etc.)
  - (h) Lack of access to electricity and poor quality of electricity supply. A socio economic survey will be undertaken by a domestic consulting firm of residential, commercial and industrial consumers. The main findings of the survey will be summarized by the international consultant.
- Provide a detailed analysis of key issues facing the gas sector.
- (iv) The consultant will identify the present status government policies with respect to the following issues including any recent developments; and

- (v) progress in implementing relevant government policies and ADB's contribution for policy making and policy implementation through its loans, TAs and policy dialogue.
  - (a) Gas sector regulatory arrangements and sector governance;
  - (b) Progress in commercializing/privatization of state owned gas sector entities;
  - (c) Quality of data/information on gas resource availability;
  - (d) Rapidly increasing demand for natural gas and limited proven gas resources;
  - (e) Attracting private investments from foreign oil companies for exploration and production to meet the expected shortfall in natural gas supply to meet the demand;
  - (f) Increasing the natural gas production and transmission capacity to meet the demand for natural gas for power generation and industrial use;
  - (g) Gas sector pricing reforms (i.e., end user tariff as well as transfer tariffs between gas sector entities);
  - (h) Improving the financial performance of gas sector entities;
  - (i) Reducing losses in gas transmission and distribution; and
  - (j) Performance of gas supply utilities in meeting the need/demands of the consumers. This will be based on the feedback received from socio economic survey to be conducted by a domestic survey firm.
- (vi) Undertake a top-down evaluation of ADB's power projects in Bangladesh focusing on: ADB's sector positioning; the overall contribution of the assistance effort to sector development results; and the quality and responsiveness of ADB's services.
- (vii) Undertake a top-down evaluation of ADB's gas projects in Bangladesh focusing on: ADB's sector positioning; the overall contribution of the assistance effort to sector development results; and the quality and responsiveness of ADB's services.
- (viii) Undertake a bottom-up evaluation of the: relevance; effectiveness; efficiency; sustainability of the outcomes; and impacts of ADB projects focusing on the following outcomes: increased Gas production and Gas Resource availability (Proven and Probable); increased private sector investment in the sector; improved financial performance of the gas sector entities; improved technical performance of gas sector entities in terms of loss reduction, network coverage and access, availability; improved and transparent regulation including tariff setting. The specific projects and TA operations to be evaluated are:
  - (a) Third Natural Gas Development (Loan 1293) (PPER)
  - (b) Dhaka Clean Fuel (Loans 1942 and 1943)
  - (c) Gas Transmission and Development (Loans 2188 and 2189 and Grant 0019)
- (ix) Undertake a bottom-up evaluation of the: relevance; effectiveness; efficiency; sustainability of the outcomes; and impacts of ADB projects focusing on the following outcomes: Commercializing and Corporatizing of Power Sector Entities (*Question Why not Privatization?*); Private Sector Participation in Power Generation (*Question Why not in distribution?*); Tariff Reforms in retail tariffs and transfer pricing between generation and distribution; Improved Financial Performance of successor entities to BPDB; improved service quality (*This can be ascertained by surveys to be undertaken during PPERs*); increased

involvement of Rural Electrification Board in Power Distribution. The specific Projects and TA operations that will be considered in the SAPE include:

- (a) Ninth Power (Loan 1505) (PPER)
  - (b) Dhaka Power System Upgrade (Loans 1730 and 1731)
  - (c) West Zone Power Development (Loans 1884 and 1885)
  - (d) Power Sector Development Program (Loans 2038 and 2039)
  - (e) Sustainable Power Sector Development Program (Loans 2332, 2333, and 2334) (i.e., quality at entry and relevance as this loan was approved in June 2007).
  - (f) Corporatization of West Zone Distribution Operations of BPDB (TA 3801)
  - (g) -Corporatization of Dhaka Electric Supply Authority (TA 3978)
  - (h) Promoting Private Sector Participation in the Energy Sector (TA 4898)
  - (i) Corporatization of Bangladesh Power Development Board (TA 4626)
  - (j) Promotion of Private Sector Participation in the Power Sector (TA 4898)
  - (k) Tendering Process for Independent Power Producer Plants (TA 4953)
- (ix) Summarize the preliminary findings and provide inputs to prepare the Aide Memoire for the wrap-up meeting in the field.
  - (x) The international consultant will prepare a report to present major findings on ADB's sector strategies and assistance program for energy, an evaluation of ADB assistance, and lessons and future challenges/opportunities in the sector; providing opinions on the matters in the evaluation approach paper; incorporating any comments that the Mission Leader and peer reviewers may have on the draft report.

#### **F. International consultant: PPER Specialist–Gas and Power (2 person-months)**

18. The Consultant will assist the Team Leader for PPERs in preparing the PPER reports for the Ninth Power and Third Natural Gas Development Projects:

- (i) Review background reports and other relevant materials to develop an understanding of ADB's loans and TAs in the sector. These include: the Report and Recommendation of the President to the Board of Directors (RRP), the Summary Environmental Impact Assessment (SEIA), the IED Sector Assistance Program Evaluation of Asian Development Bank Assistance to Bangladesh Power Sector, the Project Completion Report (PCR), loan and project agreements, consultant report outputs, a sample of PPERs, and relevant guidelines.
- (ii) Assist the Mission Leader to assess the relevance of the Projects' formulation, design and implementation with respect to (a) quality of the feasibility studies and project appraisal, (b) implementation schedule; (c) project organization and coordination; (d) contribution to the institutional development of the executing agencies, and contribution to sector and policy reforms; and (e) compliance with ADB operational strategies and policies at the time.
- (iii) Assist the Mission Leader to inspect project facilities and assess the quality of overall physical implementation. Compare with the achievements as envisaged in the RRP and as stated in the PCR.
- (iv) Assess the operations of the Project taking into account the impact of EAs' operational efficiencies, maintenance procedures, and the availability of expertise in plant operation and maintenance. Assist in collecting the necessary technical information needed to recalculate the financial and economic internal rate of

return for the Project. Based on the analysis above, assess the sustainability of the Project.

- (v) Summarize the preliminary findings and provide inputs to the draft Aide Memoire for the wrap-up meeting in the field.
- (vi) The international consultant will prepare a report to present major findings on the design and implementation of the Projects and a performance assessment of the relevance, effectiveness, efficiency, sustainability and impact of the Projects. Provide technical opinions on the subjects raised in the evaluation approach paper; assess the performance of ADB and the borrower, identify key lessons learned, and provide related recommendations for future projects of this nature. Incorporate any comments that the Mission Leader and peer reviewers may have on the draft report.

## **G. Domestic Consultant – Gas Specialist (2 person-months)**

### **1. Inputs Required for Bangladesh Energy SAPE**

- (i) Prepare a description of relevant domestic policies and institutional arrangements for the gas sector in Bangladesh. The institutional overview should identify what are the entities responsible for sector strategy and policy, sector regulation, gas field development and exploration of new resources, soliciting private sector investments, gas field operation, gas transmission pipelines and gas distribution.
- (ii) Report on the importance of the natural gas sector to Bangladesh energy security and overall economy (i.e., impacts on industrial sector competitiveness, fossil fuel imports, fiscal impacts if any and balance of payments). Comment upon how the increased availability of natural gas has contributed to the socio economic development of the country. Highlight the overall objective/expected impact of gas sector development in the context of socio economic development plan/poverty reduction strategy of Bangladesh and ADB's CSP.
- (iii) Provide a detailed analysis of key issues facing the gas sector. The consultant will identify the present status government policies with respect to the following issues including any recent developments and progress in implementing relevant government policies and ADB's contribution for policy making and policy implementation through its loans, TAs and policy dialogue
  - (a) Gas sector regulatory arrangements and sector governance
  - (b) Progress in commercializing/privatization of state owned gas sector entities
  - (c) Quality of data/information on gas resource availability
  - (d) Rapidly increasing demand for natural gas and limited proven gas resources.
  - (e) Attracting private investments from foreign oil companies for exploration and production to meet the expected shortfall in natural gas supply to meet the demand
  - (f) Increasing the natural gas production and transmission capacity to meet the demand for natural gas for power generation and industrial use.
  - (g) Gas sector pricing reforms (i.e., end user tariff as well as transfer tariffs between gas sector entities).
  - (h) Financial performance of gas sector entities
  - (i) Reducing losses in gas transmission and distribution

- (j) Performance of gas supply utilities in meeting the need/demands of the consumers. This will be based on the feedback received from socio economic survey to be conducted by a domestic survey firm.
- (iv) The Consultants will review the implementation of ADB's ongoing gas sector projects in the energy sector since 2001 and identify the relevance of the manner these projects implemented for addressing the key sector issues, the effectiveness of the implementation arrangements for these projects and any issues that have been encountered during implementation.
  - (a) Dhaka Clean Fuel (Loan 1942)
  - (b) Gas Transmission and Development (Loans 2188 and 2189)
  - (c) Capacity Building of Gas Transmission and Development (Grant 019)

## **2. Inputs Required for SES on GEG Efficiency of ADB's Energy Sector Portfolio**

- (i) These relates to following issues;
  - (a) What is the extent of gas leakages and theft, pilferage and non metered consumption among gas losses?
  - (b) What are the measures to be undertaken as part of the ADB Projects to reduce the gas losses and leakages?
  - (c) What was the consumer perception on gas price reforms? Did that had an impact on how they use gas?
  - (d) What is the extent of CNG used for transportation? To what extent ADB Projects contributed to the take up of CNG for transportation?
  - (e) What is the extent of CNG leakages in CNG filling stations?
  - (f) What are the main barriers for increasing the use of CNG for transport? (i.e., lack of CNG filling stations, lack of CNG, lack of CNG enabled vehicle fleet etc?)
  - (g) What are the GHG and air quality impacts of replacing gasoline / diesel with CNG in transport?

## **3. Inputs Required for PPER on Third Natural Gas Development Project**

19. The purpose of this consultancy is to assist the team leader and the international consultants in carrying out an ex-post evaluation of the Third Natural Gas Development Project by providing technical and evaluative assistance in all aspects of the evaluation including financial, management, and engineering aspects.

20. The detailed tasks of the domestic consultant will include but will not be limited to the following:

- (i) Assist the team leader to assess the relevance of the Projects' formulation, design and implementation with respect to (a) quality of the feasibility studies and project appraisal, (b) implementation schedule; (c) project organization and coordination; (d) contribution to the institutional development of the executing agencies, and contribution to sector and policy reforms; and (e) compliance with ADB operational strategies and policies at the time.

- (ii) Assist the team to inspect project facilities and assess the quality of overall physical implementation. Compare with the achievements as envisaged in the RRP and as stated in the PCR.
- (iii) Assess the operations of the Project taking into account the impact of EAs' operational efficiencies, maintenance procedures, and the availability of expertise in plant operation and maintenance. Assist in collecting the necessary technical information needed to recalculate the financial and economic internal rate of return for the Project. Based on the analysis above, assess the sustainability of the Project.
- (iv) Summarize the preliminary findings and provide inputs to prepare the Aide Memoire for the wrap-up meeting in the field.

#### **H. Domestic Consultant – Power Specialist (1.5 person-months)**

##### **1. Inputs Required for Bangladesh Energy SAPE**

- (i) The Consultant should identify the importance of the power sector to the overall national economy. In this context the consultant should comment on the following issues;
  - (a) Whether the power sector is receiving any fiscal subsidies and if so the extent of such subsidies.
  - (b) Electricity tariffs and the implications on industrial competitiveness of tariffs.
  - (c) Extent of the access to electricity and rural electrification.
- (ii) Provide a detailed analysis of key issues facing the power sector. The consultant will identify the present status with regards to the following issues including any recent developments. Some of these issues are related to the following.
  - (a) Lack of adequate generation capacity and prevalence of load shedding.
  - (b) How did the demand supply balance evolve during since 2003 and what are the trends for the future?
  - (c) What is the new capacity additions planned for next 10 years to meet the demand shortfall?
  - (d) What is the prevalence of load shedding and how is it impacting on the consumers?
  - (e) Review the incentive structure and the solicitation process for private sector investments in power generation
- (iii) The Consultants will review the implementation of ADB's ongoing power sector projects in the energy sector since 2001 and identify the relevance of the manner these projects implemented for addressing the key sector issues, the effectiveness of the implementation arrangements for these projects and any issues that have been encountered during implementation. The specific Projects and TAs to be reviewed include the following;
  - (a) Dhaka Power System Upgrade (Loans 1730 and 1731)
  - (b) West Zone Power Development (Loans 1884 and 1885)
  - (c) Power Sector Development Program (Loans 2038 and 2039)
  - (d) Sustainable Power Sector Development Program (Loans 2332, 2333, and 2334) (i.e. quality at entry and relevance as this loan was approved in June 2007).
  - (e) Corporatization of West Zone Distribution Operations of BPDB (TA 3801)

- (f) Corporatization of DESA (TA 3978)
- (g) Promoting Private Sector Participation in the Energy Sector (TA 4528)
- (h) Corporatization of BPDB (TA 4626)
- (i) Promotion of Private Sector Participation in the Power Sector (TA 4898)
- (j) Tendering Process for IPPs (TA 4953)

## 2. Inputs Required for SES on GEG Efficiency of ADB's Energy Sector Portfolio

- (i) Undertake several specific studies required for the SES on GHG Efficiency in ADB's Energy Sector portfolio. These include the following tasks;
  - (a) Under a load flow study of the Bangladesh Power Transmission network in cooperation with the PGCB to determine the incremental impact of ADB financed transmission lines.
  - (b) After reviewing the investment plans of DESCO estimate the degree of reduction in technical losses of power distribution to be achieved in DESCO Franchise Area as a result of (i) ADB Projects Loan 1505 Ninth Power in DESCO Franchise Area (ii) projected to be achieved after the completion of Loan 1730 Dhaka Power System Upgrade Project (iii) projected to be achieved as a result of Loan 2038 Sustainable Power Sector Development Project .
  - (c) After reviewing the investment plans of DPDC, estimate the degree of reduction in technical losses of power distribution to be achieved in DPDC franchised area as a result of Loan 2038 Sustainable Power Sector Development Project.
  - (d) After reviewing the investment plans of REB, estimate the degree of reduction in technical losses of power distribution to be achieved in the area taken over by REB in Dhaka area as a result of Loan 1730 Dhaka Power System Upgrade Project.
  - (e) After reviewing the investment plans of BPDB, estimate the degree of reduction in technical losses in power distribution to be achieved in West Zone and North West Zone of BPDB as a result of Loan 1884 West Zone Power System Development Project and Loan 2038 Power Sector Development Project.
- (ii) What are the specific measures taken to improve the efficiency energy supply in ADB financed projects? Review the ADB financed projects and technical assistance grants with respect to following issues;
  - (a) The specific actions promoted by ADB for technical loss reduction in power distribution;
    - 1. Use of better conductors.
    - 2. Life cycle costing in the bidding process for transformers
    - 3. Energy Audits for power distribution networks to identify the sources for losses.
    - 4. Any other measures taken for technical loss reduction.
  - (b) The specific actions promoted by ADB for promoting energy efficiency in power generation through efficiency improvements of power plants, energy audits etc.

- (c) The specific actions promoted by ADB for improving the end user energy efficiency improvements through tariff reforms, time of use metering , promotion of energy efficient lighting, power factor correction etc.

### **3. Input Required for PPER on Ninth Power Project**

21. The purpose of this consultancy is to assist the team leader and the international consultants in carrying out an ex-post evaluation of the Ninth Power Project by providing technical and evaluative assistance in all aspects of the evaluation including financial, management, and engineering aspects.

22. The detailed tasks of the domestic consultant will include but will not be limited to the following:

- (iii) Assist the team leader to assess the relevance of the Projects' formulation, design and implementation with respect to (a) quality of the feasibility studies and project appraisal, (b) implementation schedule; (c) project organization and coordination; (d) contribution to the institutional development of the executing agencies, and contribution to sector and policy reforms; and (e) compliance with ADB operational strategies and policies at the time.
- (iv) Assist the team to inspect project facilities and assess the quality of overall physical implementation. Compare with the achievements as envisaged in the RRP and as stated in the PCR.
- (v) Assess the operations of the Project taking into account the impact of EAs' operational efficiencies, maintenance procedures, and the availability of expertise in plant operation and maintenance. Assist in collecting the necessary technical information needed to recalculate the financial and economic internal rate of return for the Project. Based on the analysis above, assess the sustainability of the Project.
- (vi) Summarize the preliminary findings and provide inputs to prepare the Aide Memoire for the wrap-up meeting in the field.

#### **I. Domestic Survey Firm**

22. In consultation with the evaluation mission leader the consultant will:

- (i) Develop survey questions and a methodological plan for undertaking a sample survey of gas and power users (household consumers, commercial firms, industry) in selected geographical regions within Dhaka. One region will have extensive experience with ADB energy projects and the other with limited or no experience.
- (ii) The survey will focus on the respondent's access to gas and electricity or other energy sources for cooking, heating, lighting, commercial and industrial purposes
- (iii) The survey will examine respondents' perceptions of the reliability/quality of supply, affordability, and general satisfaction with their energy services.
- (iv) Produce a short summary report (5-10 pages) describing the survey's findings and providing IED with the raw data in Microsoft Excel format.