

**AFG -- Energy Sector Development Investment Program**  
**Section 5. Terms of Reference**  
**Consulting Services Package for Preparation of Projects for Tranche IV**

1. In December 2008 the Asian Development Bank (ADB) approved the Grant 0134-AFG: Multitranchise Financing Facility – Energy Sector Development investment Program - Project 1 for the Islamic Republic of Afghanistan (Afghanistan). The executing agency (EA) is Da Afghanistan Bershna Sherkat (DABS) – Afghan Power Utility. One important component under G-0134 is the consultancy package for preparation of sub-Projects for Tranche IV. The Tranche IV is expected to be approved by ADB Board sometimes in end 2012 with an estimated amount of \$280 million. The indicative list of projects to be financed under Tranche IV is presented below. It may be noted that the list was prepared in 2011 based on available information at that time. The projects may change before commencement of the consulting services and/or during the duration of the services based on development needs/priorities and coordination with development partners. The *Report and Recommendations of the President* to the Board of Directors (RRP) of the captioned MFF can be downloaded from (<http://www.adb.org/Documents/RRPs/AFG/42094-RRP-AFG.pdf>). Some information like Procurement Plan is updated regularly.

Indicative Projects	Estimated Cost	Brief Description
North East Power System (NEPS) 220 KV transmission Line Replication Pul-e-Khumri – Chimtala & Chimtala 160 MVA Replication	\$100 million	The project comprises a 200-kilometer, double-circuit 220 kv (routing and voltage options to be ascertained and analyzed by consultant under this project) transmission line from Pul-e-Khumri to Chimtala (Kabul). The NEPS system already has a transmission line along this corridor. However, as Afghanistan Electricity Corporation (DABS) is planning to import electricity from additional Tajikistan, Uzbekistan, and Turkmenistan as well as act as a transit country with possible exports to neighboring countries, expansion of NEPS system and its connection to South is critical and is currently a bottleneck. Therefore, before any physical expansion of NEPS to the south of Kabul, the capacity of this section needs to be augmented.
220 KV double circuit power transmission line from Sheberghan and Naibabad	\$75 million	The Government is in discussion with private sector to develop a gas fired Combined Cycle Gas Powered Power Plant (IPP 250 MW) in Sheberghan. ADB has agreed to provide construct 220 kv double circuit power transmission line from the proposed power plant to Naibabad switching station, thereby connecting to NEPS
220 KV double circuit power transmission line Dashti Barchi to Logar to Gardez	\$45 million	The Government has asked the Asian Development Bank (ADB) to consider the development of power infrastructure south of Kabul. Subject to stable security south of Kabul, ADB has agreed in principle to consider financing the construction of the transmission line from Kabul to Logar and Gardez.
MV and LV power distribution networks	\$45 million	Power distribution systems in the towns of Sheberghan, Logar and Gardez.
Kabul New City Power Transmission link	\$20 million	The Government has requested ADB to consider provision of power from Chimtala sub-station to Kabul new city (Dehsabz and Barikab) in North between Bagram and existing Kabul city

2. A consulting firm (Consultant) will be recruited to provide consulting services to structure Tranche IV and prepare individual projects at the feasibility study level to be financed by MFF - Project (Tranche-IV). The recruitment of consultants will be in accordance with ADB's

Guidelines on the Used of Consultants (February 2007), as amended from time to time, using the quality based selection method. The proposal will be a simplified technical proposal.

3. The EA will provide the Consultant, free of charge, with relevant data, information and documents which the Consultant may reasonably request e.g. power system data, transmission/sub-station design specifications, details of any route considered, any other planning information like land ownership and acquisition, legal requirements, permits needed and granted, public information, among others. The EA will arrange and facilitate meetings with relevant institutions and authorities as required and will provide in such context where possible and requested by the Consultant translation services which will be at Consultants expense.

4. A total of 60.0 international person-months and 62.0 national person-months of consulting services will be required under the services. The team composition of the International and notational consultants along with their estimated person-months is provided in Table below.

**Table: Consultant Team Composition**

<b>International Consultants</b>	<b>No. of Experts</b>	<b>Total P-M</b>	<b>National Consultants</b>	<b>No. of Experts</b>	<b>Total P-M</b>
Power Sector Specialist/Team Leader	1	10.0	Transmission Line Expert	1	12.0
System Simulation Expert	1	8.0	Distribution System Expert	1	12.0
Transmission Line Expert	1	10.0	Financial Analysis Expert	1	8.0
Distribution System Expert	1	10.0	Economic Analysis Expert	1	8.0
Financial Analysis Expert	1	4.0	Environmental Safeguard Expert	1	8.0
Economic Analysis Expert	1	4.0	Social Safeguard Expert	1	8.0
Environmental Safeguard Expert	1	4.0	Procurement/Contract Specialist	1	6.0
Social Safeguard Expert	1	4.0			
Procurement/Contract Specialist	1	6.0			
Total P-M (International Consultants)		60.0	Total P-M (National Consultants)		62.0

#### **A. Scope of Works**

5. DABS is a recently commercialized corporation with limited resources and capacities. Therefore the role of the Consultant would be to mentor and transfer technical and managerial skills to the young Afghan engineers seconded by DABS to Consultant. The objective of the assignment is to provide engineering and design advisory services to DABS including review of project concept, cost estimates and schedules, preparation of bidding documents for international competitive bidding to select turnkey contractors for works, preparation of bid evaluation reports and assistance at contract negotiations. The Consultant will prepare all reports in English and summary of reports in Dari.

6. Existing studies on sub-projects could be preliminary in nature, if available. The objective of Concept Review Stage is to prepare project concept, inspect existing facilities, detailed feasibility studies, detailed schedules and costing estimates. The Consultant tasks in the Concept Review Stage would comprise the following, among others:

- (i) Examine the policy, regulatory, institutional, financial and legislative environment governing activities in Afghanistan power development, transmission, dispatch and distribution
- (ii) Review available studies, reports and related documentation relating to power generation transmission and distribution assets, public and private
- (iii) Collect all available data, analyze information and plans concerning the existing transmission line sections, sub-stations (diagrams, construction plans, planning Documents, detailed drawings of facilities, and reformulate any additional drawings required.
- (iv) Obtain topographical, geogological, hydrological and other data required for design of projects
- (v) Inspect existing facilities on proposed transmission routes, distribution networks and prepare outline design or detailed design depending upon whether contract will be design build or design-bid-build. It should be noted that existing designs, if available, are very preliminary in nature.
- (vi) Review initial environmental examinations and short land acquisition and resettlement plans as appropriate in accordance with ADB's Safeguards policy 2009
- (vii) Prepare reports to include (i) project schedules and detailed cost estimates, (ii) outline specifications for all plant and equipment for EA's review/approval, (iii) draft conditions of contract for EA's approval, and (iv) draft turnkey contract(s).

7. The objective of International Competitive Bidding stage is to assist the EA in selecting turnkey contractors, for various sub-projects under Tranche IV through international competitive bidding following ADB's procurement guidelines. Specific tasks would include, among others:

- (i) Prepare detailed specifications for all plant and equipment (including metering and billing systems for distribution networks
- (ii) Prepare all relevant documentation to ensure successful bidding
- (iii) Define and agree with EA and with ADB a procurement strategy including but not limited to (i) need for pre-qualification, (ii) bidding procedures (types of contract and packaging), and (iii) timing
- (iv) Assemble and formulate all documents related to bidding packages including (i) prequalification documents (if required), (ii) technical description, (iii) plant/equipment specifications, (iv) project drawings, (v) conditions of award, (vi) bidding terms and conditions.
- (v) Review technical/financial proposals from bidders
- (vi) Prepare bid evaluation reports including award recommendation
- (vii) Assist the EA in contract negotiations

8. The Terms of Reference for key international consultants are provided herein.

### **Power Sector Specialist/Team Leader**

The Power Sector Specialist/Team Leader will be a senior energy economist or electrical engineer with a degree in the above and preferably at least 20 years of relevant experience covering studies, planning, programming, and managing power sector projects in various countries, including transmission, distribution and hydropower development. Preferably at least 10 years experience will be in developing countries. Experiences in Afghanistan and other post-conflict environment are desired. The Power Sector Specialist/Team leader will undertake the following:

- (i) Overall responsibility of supervising the team of consultants, coordinating with the Government of Islamic Republic of Afghanistan (the Government) relevant agencies, development partners, and ADB on optimal development of power infrastructure in AFG. As various donors are active in the energy/power sector in Afghanistan, it is critical to maintain close communication with all stakeholders to avoid gaps and overlaps in the selection of projects. He would also liaise with ADB financed consultants developing AFG power sector masterplan as well as regional power masterplan.
- (ii) Update the energy sector road map and policy framework through assessment of the current (short to medium term) needs of the sector. The assessment should include an update of the legal and regulatory status of energy sector as well as progress of prominent energy sector development projects such assessment will not only deal with activities/ responsibilities of DABS, but should include those of Ministry of Energy and Water, (MEW), Ministry of Rural Rehabilitation and Development (MRRD), Ministry of Mines (MOM), etc.
- (iii) Together with System Simulation Expert and others, study the situation of the 220 KV North East Power System (NEPS) through collection of data/information on progress of NEPS development, import power, domestic generation capacity, load forecast, and system simulation.
- (iv) Based on the output of the simulation and through discussions with the Government, EA development partners and other relevant stakeholders, lead the team to review the indicative projects and propose potential projects to be financed under MFF Project IV. The projects may be physical and/or non-physical. Clear selection criteria should be prepared. The projects should be agreed by the Government, EA, development partners and ADB.
- (v) Lead the preparation of feasibility studies for the identified projects. The studies should include technical planning and design, social/environment safeguard documents, economic/financial analyses, procurement packaging, implementation schedule, etc.
- (vi) Prepare Tranche IV plans for costing, financing plan and implementation arrangements. The implementation arrangement, including demarcation of responsibilities, fund flow, etc, shall be structured carefully with consent of all parties, if additional implementing agencies are identified (e.g. MEW, MRRD).
- (vii) Review and update preliminary cost estimates, prepare a list of materials, equipment, and works necessary to implement the subprojects, and, based on the result of the route survey, prepare a transmission line profile and tower spottings;
- (viii) All feasibility studies will be summarized into one single report and also presented in the format of a Periodic Financing Request.
- (ix) Deliver presentations at the Inter-Ministerial Commission for Energy (ICE) meetings and other meetings with or on behalf of ADB regarding progress of Project IV preparation.
- (x) Lead the preparation of inception, interim, draft, final and other reports as requested by the Government.

### **System Simulation Expert**

The System Simulation Expert will have a degree in-electrical engineering or energy economics and preferably 10 years of experience working in power system development Experiences in Afghanistan and other post-conflict environment are desired. The Expert will undertake the following:

- (i) Collect available data required for the system simulation of the NEPS including generation capacities/patterns, import schedule, transmission system capacities, load forecast, etc. Together with Transmission Line Expert, Distribution Line Expert and others, conduct additional assessment to derive input data if not readily available for reliable simulation.
- (ii) Develop the NEPS model to execute system simulation to conduct load flow and short circuit analysis. Several scenarios (e.g. system expansion options, imports from three countries, additional domestic generation capacity, dry/wet year, low/base/high load cases etc.) are required.
- (iii) Interpret the system simulation outputs and discuss with EA, Government, development partners, ADB and other relevant stakeholders to identify development needs of the NEPS. As time is limited, such discussion should commence as soon as initial outputs are obtained.
- (iv) Prepare a separate report on the system simulation and provide updates and summaries in the inception, interim, draft final, final and other reports.

### **Transmission Line Expert & Distribution Network Expert**

The Transmission Line Expert and Distribution Network Expert each will have a degree in electrical engineering and preferably 10 years of experience working in development/rehabilitation of transmission lines, substation and grid systems. Experiences in Afghanistan and other post-conflict environment are desired. The Experts will undertake the following:

- (i) Study the current status of the power system, in particular the NEPS, and identify development needs for transmission lines, substations, and distribution networks.
- (ii) Based on the system simulation and review of existing studies on development of transmission and distribution networks, determine whether the proposed projects should be priority based on various factors including consideration for least cost solution for meeting the required transmission/ substation/distribution system capability.
- (iii) Conduct site reconnaissance (route surveys) to collect data/information for feasibility study level design.
- (iv) Prepare feasibility studies for projects on transmission and distribution network development/rehabilitation and for project components including them (e.g. hydropower project with transmission/distribution components). The studies should include at minimum feasibility study level drawings.
- (v) Prepare bill of quantities and cost estimates, separating foreign exchange and local currency cost prepare a list of materials, equipment, and works necessary to implement the projects.
- (vi) Coordinate with Procurement/Contract Specialist on project implementation schedule and procurement arrangements including contract packaging in accordance with ADB's *Guidelines on Procurement*.
- (vii) Prepare engineering designs and technical specification of transmission lines, including towers, conductors, insulators, ground wires, etc. in accordance with relevant technical standards, prepare engineering designs and technical specification of substations in accordance with relevant technical standards
- (viii) Prepare detailed project implementation schedules showing anticipated progress of works and expenditures for each contract package and taking into account seasonal climatic conditions, prepare engineering drawings required for the

preparation of bidding documents, and prepare bidding documents for the subprojects following ADB's *Guidelines for Procurement and Standard Bidding Documents*.

- (ix) Provide on the job training (OJT) to counterpart engineer on field of expertise.
- (x) Provide input on the field of responsibility to inception, interim, draft final and other reports.

### **Financial Analysis Expert:**

The Financial Analysis Expert will have degree in finance/economics and preferably at least 10 years of relevant experience in economic and financial analysis of projects. Previous experience in developing countries, particular in Afghanistan, is desirable. The Expert will undertake the following:

- (i) Prepare, together with the engineers, a detailed cost estimate of each individual subproject, separating foreign exchange and local currency, including physical and price contingencies, interest during construction, commitment fee and other financing charges, as other costs where applicable.
- (ii) Perform financial analysis (i) of each project (and ii) for the entire Tranche IV to determine its financial rates of return in accordance with ADB's Guidelines. Identify all risks to project revenue and costs and conduct relevant sensitivity analysis.
- (iii) Identify the specific sources and projection of revenue from the investment projects, to indicate the financial viability of the investment subprojects, also taking into account the reduction of system losses and any improvement in operational efficiency.
- (iv) Prepare a financing plan for Tranche IV, including proposed ADB lending, any prospective co-financing, and appropriate counterparts funds for local currency expenditures.
- (v) Assess EA and implementing agencies (IA) financial management capabilities and update the Financial management Assessment through:
  - Review of earlier ADB and other donors' studies and make any recommendations for institutional strengthening of financial management along with a recommended time-bound implementation plan.
  - Review the most current audited and/or unaudited financial statements of the EA to assess (a) historical financial performance, (b) retail tariff levels, (c) capital structure and (d) sufficient generation of internal funds to ensure sustainability of ongoing operation (i.e. self-finance a reasonable percentage of capital expenditures and service existing debt); the consultant will also review recent audited project accounts to determine proper accounting and cost control;
  - Briefly summarizing past historical and projected financial performance, which will include 10-years pro forma financial statements (balance sheet, income statement of cash flows); and
  - Recommending appropriate financial performance measures/ratios for the EA, and assess compliance with such measure/ratios in pro-forma statements.
- (vi) Provide OJT to counterpart staffs on field of expertise and deliver lectures in training workshops to communities and stakeholders.

- (vii) Provide input on the field of responsibility to inception, interim, draft final, final and other reports.

### **Economic Analysis Expert:**

The Economic Analysis Expert will have degree in finance/economics and preferably at least 10 years of relevant experience in economic and financial analysis of projects. Previous experience in developing countries, particular in Afghanistan, is desirable. The Expert will undertake the following:

- (i) Conduct surveys on energy use and expenditures as well as willingness to pay for power supply. Identify use of electricity for economic development and livelihood improvement.
- (ii) Conduct economic analysis of each project and for the entire Tranche IV by comparing with- and without-project cases for different load growth scenarios; this will include calculation of the economic internal rate of return (EIRR), taking into account economic costs and benefits in accordance with ADB's Guideline for the economic Analysis of Projects and Guidelines for the Financial Governance and Management of Investment Projects Financed by the Asian Development Bank. Identify all risks to project revenues and costs and conduct relevant sensitivity analysis.
- (iii) Analyze the economic subsidies involved in the current tariff structure and the extent of cross-subsidization between major consumer groups and regions; and review the appropriateness of the existing lifeline tariff block.
- (iv) Update existing estimates of costs of unserved energy due to unreliability of the system; and develop several scenarios for the load growth forecast;
- (v) Identify stakeholders and conduct a distributional analysis of net project benefits in accordance with ADB's handbook for Integrating Poverty Impact in Economic Analysis for Projects; calculate the poverty impact ratio (PIR) and the cost effectiveness of the project in reducing poverty; and undertake appropriate risk and sensitivity analysis with respect to the PIR;
- (vi) Specify indicators to monitor the project benefits; and establish procedures and provide cost estimates for benefits monitoring and evaluation in terms of ADB's Guidelines for Benefits Monitoring and Evaluation; and
- (vii) Prepare a project framework, according to ADB standards, that clearly identifies the goals and objective of the proposed Tranche IV subprojects, required inputs, targets or benchmarks, monitoring mechanism, potential risks, and assumption.
- (viii) Provide OJT to counterpart staffs on field of expertise.
- (ix) Provide input on the field of responsibility to inception, interim, draft final, final and other reports.

### **Environmental Safeguard Expert**

The Environmental Specialist will have a degree in Environmental Engineering/Sciences and preferably at least 10 years of relevant experience in carrying environmental studies including environmental impact assessment (EIA) of infrastructure projects. Previous experiences in undertaking environmental studies and analysis in power sector in developing countries are desirable. The Expert, in accordance with the relevant guidance and policies for environmental assessment will undertake the following tasks, including preparation of relevant sections and attachments to the PFR as outlined below.

- (i) Conduct Initial environmental examinations (IEEs) for all projects, accordance with ADB's Environment Policy (2002, Taking into account te likely impacts associated with their locations, designs, and construction activities, as well as the long-term impacts during operation, including identifications of environmental issues form activities directly induced by the projects. Impacts shall include cumulative impacts from related developments.
- (ii) Prepare IEE reports and summaries for each project based on the environmental assessment requirements of ADB's polices/guidelines and any applicable procedures or guidelines for environmental assessment as required by the Government; and ensure that the costs for implementation of recommended environmental management and monitoring plans, and any capacity strengthening measures, are included in Tranche IV development costs;
- (iii) If the IEE recommends undertaking a full environmental impact assessment (EIA), conduct the EIA and prepare the report and its summary, including an environmental management plan to implement mitigation measures;
- (iv) Conduct public consultations and importation disclosure to affected persons (APs) as required by ADB and Government; and
- (v) Prepare or update an Environmental Assessment and Review Framework (EARF) containing recommendations for appropriate environmental mitigation measures for identified significant impacts and mentoring plans to address these impacts; and assess measures that may be needed for the implementation of environmental management and monitoring plans.
- (vi) Provide OJT to counterpart experts on field of expertise
- (vii) Provide input on the field of responsibility to inception, interim, draft final, final and other reports.

### **Social Safeguards Expert**

The Social Development Specialist will have a minimum of Master's degree in sociology and preferably at least 10 years of relevant experience in carrying out social development activities including preparation of resettlement plans related to infrastructure projects. Previous experience in undertaking social studies and analysis in the power sector developments is desirable. The Expert, in accordance with all relevant polices, handbooks, and guidelines of ADB and in particular with ADB's *Policy on Involuntary Resettlement* (1995), *Policy on Indigenous People* (1998), and *Handbook on Resettlement*, will prepare Resettlement Plans (RPs) for projects involving involuntary resettlement and/or land acquisition and if need an Indigenous Peoples Development Pan (IPDP) in full consultation with APs and other stakeholders, and prepare other relevant documents, including preparation of relevant sections and attachments to the PFR. The consultant will also prepare a Gender Action Plan (GAP) and:

- (i) Assist the EA/IA design the subprojects in order to minimize resettlement and land acquisition, inclusive of preparing resettlement plans (RPs) for subprojects and updating the Land Acquisition and Resettlement Framework (LARF);
- (ii) Review the result of initial site/route surveys for the projects to determine the most cost effective design, wherever possible, seeking to avoid involuntary resettlement and land acquisition;
- (iii) In accordance with ADB's Policy on Involuntary Resettlement and handbook on socioeconomic profiles (20 % sample survey) of the project-affected communities carry out field surveys as necessary. Ensure data is disaggregated by gender and vulnerable groups. Include gender (and Therefore prepare a GAP) and local

- ethnic minority profiles; assess the need for a IPDP; include initial involuntary resettlement and indigenous people’s checklists in the inception report;
- (iv) Undertake a full census and inventory of lost assets (in terms of loss of homes, Agricultural and other lands; or loss of access to current income-generating activities, including impacts caused by permanent or temporary acquisition) of affected people and a baseline socioeconomic survey of the affected populations: determine the scope and magnitude of likely resettlement effects’ and list likely losses of households, agricultural lands, business and income opportunities, as well as affected communal assets and public building;
- (v) If subprojects are likely to involve significant resettlement, prepare a resettlement plan (RP) with full participation of stakeholders and the executing and implementing agencies subprojects are classified as not significant; (b) a summary resettlement plan; and (c) an indigenous peoples development plan (IDPDP), if required;
- (vi) Prepare an entitlement matrix listing all likely effects, both of permanent and of temporary land acquisition, and study to determine the replacement costs of all categories of losses ; and prepare an indicative budget for land acquisition and resettlement costs with specific sourcing and approval process;
- (vii) PP prepare a grievance mechanism and appeal procedures, and mechanisms for disclosing the RP to affected persons in a form and manner understood by them and disclosure on ADB’s website and detailed in the RP;
- (viii) Together with the EA, identify any development interventions that may be incorporated into projects’ design to assist in improving the welfare and economic conditions of APs and communities in the subprojects areas, in particular IPs, women and other vulnerable groups;
- (ix) Analyze the development impact of proposed projects and assess its potential impact on poverty reduction (for example, affordability-to-pay, employment opportunities, increased income, livelihood development small and medium-scale enterprise development) in accordance with the ADB’s Handbook on poverty and Social Analysis and Handbook for Integrating Poverty Impact in Economic Analysis of Projects and
- (x) Update the Summary Poverty Reduction and Social Strategy, provide OJT to counterpart experts on field of expertise and provide input on the field of responsibilities inception, draft final and other reports.

### **Procurement/Contract Specialist**

The Procurement/Contract Specialist will preferably have a Master’s Degree in contracts management, engineering or administration, with preferably 15 years of relevant experience. The Specialist’s responsibilities include, but are not limited to:

- (i) Work closely with transmission line and distribution network expert in finalizing procurement mode/methodology/packaging, preparation of tender documents, and procurement strategy.
- (ii) Preparation of bidding documents as per ADB’s *Guidelines on Procurement* and coordination with Afghan Reconstruction Development Services, and the Contracts Management Office; and coordinate preparation of these documents with the Transmission Line Expert and Distribution Network Expert.
- (iii) Preparation of procurement plans, evaluating bids and managing contracts
- (iv) Assist EA in contract negotiations and preparation of requisite documentation

## **B. National Consultants**

9. All key international consultants will have national counterparts. The Team Leader along with each individual international consultant will assign responsibilities for the national consultants. The responsibilities will be similar to those of the international consultants and for approximately the similar duration. All national consultants should have preferably 5 years of experience in their area of expertise.

## **C. Outputs**

10. The Consultant will prepare monthly progress reports in a format and level of detail acceptable to DABS and ADB. The Consultant will also prepare inception, interim, draft final and final reports for DABS and ADB. The Consultant would also be required to present the findings at various government meetings.

11. The Consultant will prepare feasibility study reports for all projects to be financed under Tranche IV, brief re-feasibility study reports for projects considered, but not selected for Tranche IV should also be prepared. The Consultant will maintain records documenting decisions made at meetings, progress on civil works, certified achievements and milestones, financial records and any deviations from or changes to the contract plans. The Consultant will present Tranche IV in ADB's Periodic Finance Request format.

12. All reports will be in the English language. Safeguard documents are to be translated in Dari/Pashto for public consultations. All documents and reports would be made available on an electronic format to ADB.