

ASIAN DEVELOPMENT BANK

TAR: PAK 34325

TECHNICAL ASSISTANCE
(Financed by the Japan Special Fund)

TO THE

ISLAMIC REPUBLIC OF PAKISTAN

FOR

INSTITUTIONAL CAPACITY BUILDING

OF THE

NATIONAL TRANSMISSION AND DESPATCH COMPANY LIMITED

June 2003

CURRENCY EQUIVALENTS

(as of 1 June 2003)

Currency Unit	–	Pakistan Rupee/s (PRe/PRs)
PRs1.00	=	\$0.0172
\$1.00	=	PRs58.30

ABBREVIATIONS

ADB	–	Asian Development Bank
GDP	–	gross domestic product
KESC	–	Karachi Electric Supply Company
NEPRA	–	National Electric Power Regulatory Authority
NTDC	–	National Transmission and Despatch Company Limited
TA	–	technical assistance
WAPDA	–	Water and Power Development Authority

NOTES

- (i) The fiscal year (FY) of the Government and its agencies ends on 30 June. FY before a calendar year denotes the year in which the fiscal year ends, e.g., FY2002 ended on 30 June 2002.
- (ii) In this report, "\$" refers to US dollars.

This report was prepared by R. Stroem, Principal Energy Specialist, South Asia Energy Division.

I. INTRODUCTION

1. During the Country Programming Mission in 2002, the Government of Pakistan requested technical assistance (TA) from the Asian Development Bank (ADB) to undertake institutional capacity building of the National Transmission and Despatch Company Limited (NTDC). A fact-finding mission visited Pakistan in February 2003 to formulate the TA and reached an understanding with the Government on the implementation arrangements, cost estimates, and terms of reference of consultants.¹ The TA framework appears in Appendix 1.

II. ISSUES

2. The power sector in Pakistan accounts for about 3.0% of its gross domestic product (GDP). However, in the last few years the financial position of the power sector has required direct and indirect cash contribution from the Government. Currently, it is estimated that the cash requirements of the power sector for FY2003 will amount to a negative impact on GDP of about 1.3%. There are a number of reasons for the current financial position of the power sector, such as (i) nonpayment of electricity provided by the Water and Power Development Authority (WAPDA) and Karachi Electricity Supply Company (KESC) to local governments and government institutions and agencies; (ii) large technical and nontechnical inefficiencies at the generation, transmission, and distribution levels of the power sector; (iii) over-leveraging of the utilities' financial capacity to meet their operating costs; (iv) lack of funds for required investments; and (v) downturn in the international market for acquisitions of power sector assets. The Government is determined to change this situation, and various measures are in the process of being implemented.

3. In April 1998 the Government approved a new power sector policy. This policy set out to create a more market-oriented power sector that would utilize private sector initiatives and funding, on a competitive basis, to meet the demand for power and enhance the sector's efficiency. It was decided that KESC would be privatized and that WAPDA would be separated into corporate entities responsible for thermal and hydro power generation, transmission and dispatch, and distribution. The Government has since then incorporated twelve new companies: 3 generation companies, 1 transmission and dispatch company, and 8 distribution companies. These corporate entities are under the purview of the National Electric Power Regulatory Authority (NEPRA).

4. ADB supports the Government's decision to reform the power sector. Subsequent to the policy decisions taken in 1998, ADB approved an energy sector restructuring program² to further support and fund the adjustment costs related to the power sector restructuring. In addition to supporting the reforms and restructuring, ADB also recognized that there was a need to undertake specific institutional capacity building of the entities directly responsible for the implementation of the new power sector. Accordingly, TA for institutional capacity building of NEPRA was approved and implemented during 2001 and 2002.³

5. During the early part of implementing the energy restructuring program and under the implementation of the NEPRA TA, it became evident that NTDC, which had been envisaged to be the entity responsible for the transmission and dispatch functions of the nationwide electricity

¹ The TA first appeared in *ADB Business Opportunities* (Internet version) on 18 February 2003.

² ADB. 2000. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Islamic Republic of Pakistan for Energy Sector Restructuring Program*. Manila.

³ ADB. 2000. *Technical Assistance to the Islamic Republic of Pakistan for Institutional Capacity Building of the National Electric Power Regulatory Authority*. Manila..

grid, would also be responsible for the power purchase and sales function, and would need capacity building to fulfill those roles. Although ADB's experience suggests that it would have been preferable to split the transmission/dispatch from the single buyer/seller functions, the Government decided to pursue a more integrated approach. This integrated approach calls for even further institutional strengthening and understanding of the risks associated with the individual business functions, and also the increased risks resulting from the integrated approach.

6. National transmission and Despatch Company Limited (NTDC) was incorporated on 6 November 1998 and commenced commercial operation on 1 March 1999. It was organized to take over all the properties, rights, assets, obligations and liabilities of 220 KV and 500 KV grid station and transmission lines/network owned by Water and Power Development Authority (WAPDA). NTDC was granted Transmission License No. TL/01/2002 on 31 December 2002 by National Electric Power Regulatory Authority (NEPRA) to engage in the exclusive transmission business for a term of 30 years, pursuant to Section 17 of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997. This 30-year license calls for NTDC to undertake three specific functions, which are (i) the transmission operations of the high voltage (200 kilovolts [kV] and above) power network, normally referred to as the wire business; (ii) the dispatch of all power generation linked to the national grid; and (iii) the single purchaser/seller of power. The license calls for the establishment and implementation of a number of functions/tasks by specifically stated deadlines. In order to meet the deadlines, and not be in breach of its licensing conditions, NTDC requires significant assistance in terms of skills and related resources. The major functions mentioned in the license are the establishment and implementation of the single buyer model by 1 July 2004, and the competitive market operations established and operational by 1 July 2009.

7. Although the power trading activities are major undertakings for NTDC, there has to be increased focus on the wire business in terms of the design and planning function, as well as the subsequent expansions. NTDC, which has been assigned the wire functions of WAPDA, will need to reassess the transmission network with the view to meeting the requirements of a competitive power trading market. These considerations are similar in the case of the dispatch function. The focus of NTDC in terms of dispatch will gradually change from the current integrated utility operations to the single buyer model, to evolve into a competitive economic dispatch model.

8. In order to ensure and improve governance in the power sector, it is necessary to undertake a comprehensive educational and training program in conjunction with the role and functions of NTDC as per its license. There need to be specific training modules for management and staff of NTDC, and also for the various stakeholders such as representatives from the government ministries and agencies, power generators and distributors, the media, and consumer protection agencies and institutions. It is of the utmost importance that the new power trading system obtains the trust and confidence of the participants, and this objective can only be met successfully by implementing a comprehensive program of education and training.

III. THE TECHNICAL ASSISTANCE

A. Purpose and Output

9. The purpose of the TA is to undertake institutional capacity building of NTDC with the objective of preparing it to professionally manage the power transmission, dispatch, and trading activities stipulated by its license. This institutional capacity building will develop and implement

more efficient and effective operating procedures for the system operations and the market operations of NTDC, resulting in a more transparent power sector. The output of the TA will be its contribution to increasing energy sector efficiency, energy sector investments, private sector participation, and to ensuring that energy supply is extended to remote areas in a sustainable manner.

B. Methodology and Key Activities

10. The TA will be implemented by deploying a team of consultants to work on a long-term basis together with the management and staff of NTDC. The consultants will assist NTDC to prepare and implement a number of tasks, in accordance with the license, in the areas of (i) power sector trading activities, (ii) financial and accounting systems and procedures, (iii) legal matters, (iv) transmission and dispatch systems and planning, (v) information technology solutions, and (iv) training. In addition to preparing NTDC to meet the requirements stated in the license of introducing a single buyer model for the power sector by 1 July 2004, the consultants will also commence preparatory activities for the introduction of the competitive market operations, scheduled to become operational by 1 July 2009. The TA will establish a clear delineation between the various business functions of NTDC, and create systems ensuring that none of NTDC's separate businesses either give or receive a subsidy from any other business segment of NTDC.

11. The TA will identify barriers to both the single buyer power sector trading system and the competitive power market model, and recommend measures to help achieve a sustainable power sector market from the single buyer model to the competitive market model through well-defined sequential steps over the next 7 years. The introduction of power sector trading activities cannot be implemented without first prioritizing required investments for the market operations of NTDC as well as the transmission and dispatch systems. The TA requires the consultants together with NTDC to develop the investment requirements over the 7-year period and ensure that the tariff filing procedures on NTDC with NEPRA clearly caters for the inclusion of investment requirements. A short, medium, and long-term investment strategy for meeting the requirements of the license will be formulated in accordance with the demand and supply projections available. The TA has been equally divided in its approach of developing the power trading activities and ensuring that NTDC maintains its focus also on the transmission and dispatch functions in terms of enhanced planning and design functions. There is a need for NTDC to plan for and design its dispatch systems for economic based dispatch, which does change the parameters of the transmission line utilization.

12. The training component of the TA will develop an integrated training program for all stakeholders in the power sector. There is a need to ensure both transparency and accountability in the power trading activities, and equally essential that management and staff of NTDC, power generators, power distribution companies, bulk purchasers, the media, and the public clearly understand and are aware of the power trading system and its various functions. The consultants will develop training modules addressing these issues for each of the stakeholder groups.

C. Cost and Financing

13. The total cost of the TA is estimated at \$750,000 equivalent, comprising about \$460,000 in foreign exchange and about \$290,000 equivalent in local currency costs. The cost estimates

are presented in Appendix 2. ADB will provide \$600,000, comprising \$460,000 in foreign exchange costs and \$140,000 equivalent of local currency cost. The TA will be funded on a grant basis by the Japan Special Fund, funded by the Government of Japan. The Government will finance the remaining \$150,000 equivalent of the local currency costs. It is recognized that the TA has a rather ambitious timetable as well as number of tasks to be completed. Accordingly, ADB is pursuing possible cofinancing opportunities in order to increase the number of person-months of international and domestic consultants allocated to the TA.

D. Implementation Arrangements

14. The Ministry of Water and Power will be the Executing Agency of the TA. NTDC will be the Implementing Agency in close cooperation with Pakistan Electric Power Company Ltd., and NTDC will assign at least four counterpart staff to work closely with the consultants. One of the NTDC counterpart staff members will serve as project director, and as such will be responsible for coordination between the consultants, the Implementing Agency, and the Executing Agency.

15. The TA is expected to commence in September 2003, and be carried out over 15 months by an internationally recognized consulting firm in association with domestic consultants, with completion by December 2004. The total input of international and domestic consultant services will be about 16 and 32.5 person-months, respectively. The consultants will be expected to have demonstrated experience in overall power sector trading activities; transmission and dispatch system planning, development, and operation; and related information technology system design, software, and hardware solutions. The outline terms of reference for the consulting services is presented in Appendix 3. ADB will use simplified technical proposals and quality- and cost-based selection methods for consultant selection. Consultants will be selected in accordance with ADB's *Guidelines on the Use of Consultants* and other arrangements satisfactory to ADB on the engagement of domestic consultants.

16. The Government, through NTDC, has agreed to fund additional person-months of domestic consultants to ensure further in-depth work being undertaken in each of the areas covered by the TA, and in particular in the areas of computer programming and information technology system design and implementation. It is clearly understood by all parties that these consultants are the same domestic consultants hired by ADB, and under the consultant contract between ADB and the consultants. The Government's obligations will be recorded in the verification of counterpart funds and facilities.

IV. THE PRESIDENT'S DECISION

17. 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 Pakistan for Institutional Capacity Building of the National Transmission and Despatch Company Limited, and hereby reports this action to the Board.

TECHNICAL ASSISTANCE FRAMEWORK

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
<p>Goal</p> <p>Support sustainable economic growth by (i) promoting sustainable power sector development; (ii) improving the availability of electricity in urban, rural, and remote areas; (iii) creating financially viable entities within the power sector; and (iv) implementing the power sector restructuring in line with the needs of the market.</p>	<p>Better financial performance of the entities in the power sector through restructuring, resulting in reliable supply to needy communities, improved policy and governance frameworks, and increased private sector participation.</p>	<p>Annual audited financial statements for each entity within the power sector. Established and implemented policies restructuring the power sector, licenses and determinations given by National Electric Power Regulatory Authority (NEPRA), review missions, and periodic progress reports.</p>	<p>Continued government commitment to promoting financially and technically sustainable power sector development and implementation of sectoral reforms and restructuring.</p>
<p>Purpose</p> <p>Develop an efficient transmission/dispatch function for the power sector inclusive of a single buyer model for power sector trading.</p> <p>Implement all tasks called for in the license given to National Transmission and Despatch Company Limited (NTDC) by NEPRA on 31 December 2002.</p>	<p>Recommend improvements to the policy and regulatory frameworks that will promote efficient trading and transmission/dispatch developments.</p> <p>Outline a prioritized program for enhancement improvements and specific investments.</p>	<p>Confirmation by reviews undertaken by NEPRA.</p> <p>Policy dialogue, review missions, and periodic reports.</p>	<p>Government's and NEPRA's commitment and capabilities to implement the policy and assigned functions and tasks.</p> <p>Willingness to undertake implementation of the identified enhancements and investment programs.</p>
<p>Outputs</p> <p>Establish NTDC's business functions in accordance with the license covering (i) the wire business, (ii) the dispatch functions, and (iii) power trading activities. These functions should be both technically and financially segregated.</p> <p>Ensure that the institutional framework for the design and planning functions of NTDC's business segments are in</p>	<p>Develop a broad planning and design framework for improving NTDC's operations in all business segments.</p> <p>Adherence to independent regulatory mechanisms, and compliance with regulatory requirements.</p> <p>Assessment of NTDC's governance structure, identification of major impediments to improving efficiency, and</p>	<p>Policy dialog, review missions, periodic reports on policy and institutional reforms, and consultants' progress reports.</p>	<p>Implementation of ongoing sector reforms.</p> <p>Compliance with the independent regulatory mechanisms, and compliance with regulatory requirements.</p>

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
<p>place.</p> <p>Development of an integrated training program for each of NTDC's business segments and stakeholders.</p>	<p>recommendation for further capacity building.</p> <p>Development of a detailed training schedule indicating time, topic, and target group for the proposed training module.</p>		<p>Continued government commitment and success in introduction of institutional reforms.</p>
<p>Activities</p> <p>Review existing facilities, institutional frameworks, regulations, and standards, and develop the required programs necessary to meet the tasks and timetables set out in the license.</p> <p>Specific submissions to NEPRA regarding tariff applications, transmission planning, and required investments for each business segment.</p> <p>Develop procedures for the power market activities assigned to NTDC. Review, develop, and implement the procedures for system operations for NTDC.</p> <p>Review and improve the information technology system of NTDC, in order to accommodate the requirements of the license.</p> <p>Develop training modules, and implement the required training for the identified business segments and stakeholders.</p>	<p>An action program for further operational quality enhancements</p> <p>Development of the forms to be used for the submission of any of the requirements.</p> <p>Medium- to long-term development programs for the sector, in compliance with market-oriented policy requirements and project viability.</p>	<p>Policy dialog, review missions, and periodic reports—in particular the inception report.</p>	<p>Availability of suitable counterparts and cooperation of all power sector entities.</p> <p>Availability of data and information on energy demand and supply as well as on potential problems and constraints.</p> <p>Cooperation of concerned agencies in providing information.</p> <p>Adoption of market-oriented considerations in project design and formulation.</p>
<p>Inputs</p> <p>International and domestic consulting services.</p> <p>Funds</p>	<p>International consulting services for 16 person-months and domestic consulting services for 32.5 person months.</p> <p>Total cost of \$750,000</p>	<p>Policy dialog, review missions, and periodic reports.</p>	<p>Engagement of capable consultants with the requisite skills. Provision of the required support by domestic consultants.</p>

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
Financing	<p>equivalent, including \$460,000 in foreign exchange and \$290,000 in local currency.</p> <p>\$600,000, on grant basis from the Japan Special Fund, funded by the Government of Japan and \$150,000 equivalent in local currency from the Government of Pakistan.</p>		Availability of counterpart funds to meet local currency costs.

COST ESTIMATES AND FINANCING PLAN
(\$'000)

Item	Foreign Exchange	Local Currency	Total Cost
A. Asian Development Bank-Financing ^a			
1 International and Domestic Consultants			
a. Remuneration and Per Diem			
i. International Consultants ^b	400	0	400
ii. Domestic Consultants ^c	0	80	80
b. International/Local Travel	20	4	24
c. Miscellaneous Administrative and Support Services	0	1	1
2 Computers, Equipment, and Supplies ^d	0	50	50
3 Report Preparation, Production, and Distribution	1	5	6
4 Contract Negotiations	4	0	4
5 Contingencies	35	0	35
Subtotal (A)	460	140	600
B. Government Financing			
1 Workshops	0	15	15
2 Domestic Consultants	0	50	50
3 Counterpart Staff	0	25	25
4 Local Transportation	0	10	10
5 Office Accommodation/Utilities	0	40	40
6 Communication	0	10	10
Subtotal (B)	0	150	150
Total	460	290	750

^a Financed by the Japan Special Fund.

^b Assuming 16 person-months of international consultants @\$25,000 per month.

^c Assuming 32.5 person-months of domestic consultants @\$4,000 per month.

^d All computers and office equipment will be handed over to the Executing Agency upon completion of the Project. Procurement of equipment will be undertaken according to procedures acceptable to the Asian Development Bank.

Source: Asian Development Bank estimates.

OUTLINE TERMS OF REFERENCE FOR CONSULTANTS

A. Scope of Services

1. The consultants will review and consider the Government's present energy sector policy as it relates to power sector restructuring, power system developments, and the functions of the National Transmission and Despatch Company Limited (NTDC) as per its license of 31 December 2002, and make appropriate recommendations after undertaking these terms of reference.

B. International Consultants (16 person-months)

1. Power Sector Trading Specialist and Team Leader – 6.0 person-months

2. The specialist will perform the following tasks:

- (i) Summarize the current and projected energy sector trading activities of NTDC, and assess the readiness of NTDC to commence trading activities as per its license. This will cover an assessment of and proposal for organizational structure, technical requirements, and human resources.
- (ii) Develop and implement the single buyer trading arrangements, in terms of the operating procedures, organizational structure, and market settlement procedures as per best market practice and in accordance with NTDC's license, and be operational by 1 July 2004.
- (iii) Identify major policy, regulatory, institutional, management, operational, and financial impediments that need to be removed to undertake the power trading activities. Recommend initiatives to remove these barriers, including action plans to promote sustainable energy development.
- (iv) Develop and implement the competitive trading arrangements, in terms of the operating procedures, organizational structure, and market settlement procedures in line with best market practice and in accordance with NTDC's license. A simulation program of the competitive trading system should be operational at the end of the technical assistance (TA).
- (v) Identify and evaluate power sector trading software and recommend to NTDC the most suitable software. This should be done in conjunction with the current upgrading of the load dispatch center operations.

2. Financial and Accounting Specialist – 3.0 person-months

3. The specialist will

- (i) assess, enhance, and implement the accounting system for the power sector trading activities;
- (ii) review, further enhance, and implement the financial management system to accurately determine the tariff requirements of NTDC;
- (iii) review and assist NTDC in developing filing procedures with the National Electric Power Regulatory Authority (NEPRA) for the transfer pricing determination as outlined in the *Draft Transition Order* for NTDC, inclusive of all requirements from each business segment of NTDC;

- (iv) review and assist NTDC develop/enhance its filing procedures, inclusive of supporting documentation, for the automatic adjustments concerning identified pass-through costs; and
- (v) review and develop an accounting system for NTDC that will cater to the segregation of business activities as required under the license.

3. Legal Specialist – 1.5 person-months

4. The specialist will have the following functions:

- (i) Review the existing contractual relationships of NTDC versus the power generators, bulk customers, and distribution companies. Ensure consistency and incorporation of all obligation manifested legally in the tariff calculations. This refers to power purchase agreements, bulk supply contracts, and energy supply agreements.
- (ii) Prepare and implement legal contracts for utilization of additional generation companies/stations, bulk suppliers, and distribution companies.
- (iii) Prepare and implement the legal transfer arrangements from the current integrated system to the power market structure described in NTDC's license. This would entail the relationship between NTDC and the Water and Power Development Authority (WAPDA), power generators, distribution companies, and bulk purchasers.

4. Power Transmission and Dispatch Specialist – 3.0 person-months

5. The specialist will perform the following tasks:

- (i) Review, further enhance, and implement operating procedures for system operations, for both the transmission and dispatch functions. This includes reviews of various draft operational codes.
- (ii) Undertake a transmission system efficiency improvement study, and recommend specific efficiency-increasing measures for implementation inclusive of implementation timetable and cost estimates. This would include a study concerning application of static var compensators in the transmission network.
- (iii) Review the dispatch system and recommend operational quality-enhancing measures to improve dispatch efficiencies, inclusive of timetable for implementation and cost estimates.
- (iv) Review the system design capabilities, and develop a long-term plan for the required design requirements of NTDC, with due consideration of the options for outsourcing and in-house system design requirements.

5. Information Technology Specialist – 2.5 person-months

6. The specialist will have the following responsibilities:

- (i) Assess current status of information technology systems within NTDC, covering both hardware and software, and the related human capacity/skills level arriving at recommendations for consideration by NTDC's Board of Directors. The

recommendations should be specific in terms of implementation timetable and costs, as well as contain a priority list of the recommendations.

- (ii) Assist with the implementation of information system enhancements as approved by NTDC during the TA period.
- (iii) Review required computer software and hardware configurations at the power generator and distribution company levels, in order to ensure a direct linkage with NTDC's operational system with the long-term objective of ensuring a fully integrated system. Make necessary recommendations for system configurations.

C. Domestic Consultants (32.5 person-months)

7. Domestic consultants will assist the international consultants in undertaking their responsibilities as described in the preceding sections. The domestic consultants tasks, are described in paragraphs 8-13.

1. Financial and Accounting Specialist – 5.0 person-months

8. The specialist will have the following tasks:

- (i) assess, enhance, and implement the accounting system for the power sector trading activities;
- (ii) review, further enhance, and implement the financial management system to accurately determine the tariff requirements of NTDC;
- (iii) review and assist NTDC in developing filing procedures with NEPRA for the transfer pricing determination as outlined in the *Draft Transition Order* for NTDC, inclusive of all requirements from each business segment of NTDC;
- (iv) review and assist NTDC develop/enhance its filing procedures, inclusive of supporting documentation, for the automatic adjustments concerning identified pass-through costs; and
- (v) review and develop an accounting system for NTDC that will cater to the segregation of business activities as required under the license.

2. Legal Specialist - 4.0 person-months

9. The specialist will have the following functions:

- (i) Review the existing contractual relationships of NTDC versus the power generators, bulk customers, and distribution companies. Ensure consistency and incorporation of all obligation manifested legally in the tariff calculations. This refers to power purchase agreements, bulk supply contracts, and energy supply agreements.

- (ii) Prepare and implement legal contracts for utilization of additional generation companies/stations, bulk suppliers, and distribution companies.
- (iii) Prepare and implement the legal transfer arrangements from the current integrated system to the power market structure described in NTDC's license. This would entail the relationship between NTDC and WAPDA, power generators, distribution companies, and bulk purchasers.

3. Power Transmission and Dispatch Specialist – 8.0 person-months

10. The specialist will take on the following tasks:

- (i) Review, further enhance, and implement operating procedures for system operations, for both the transmission and dispatch functions. This includes reviews of various draft operational codes and the codes related implementation.
- (ii) Undertake a transmission system efficiency improvement study, and recommend specific efficiency-increasing measures for implementation inclusive of implementation timetable and cost estimates. This would include a study concerning the application of static var compensators in the transmission network.
- (iii) Review the dispatch system and recommend operational quality-enhancing measures to improve dispatch efficiencies, inclusive of timetable for implementation and cost estimates.
- (iv) Review the system design capabilities, and develop a long-term plan for the required design requirements of NTDC, with due consideration of the options for outsourcing and in-house system design requirements.

4. Information Technology Specialists – 11.5 person-months

11. The specialists will have the following responsibilities:

- (i) Assist with the implementation of information system enhancements as approved by NTDC during the TA period;
- (ii) Review required computer software and hardware configurations at the power generator and distribution company levels, in order to ensure a direct linkage with NTDC's operational system with the long-term objective of ensuring a fully integrated system. Make necessary recommendations for system configurations.
- (iii) Develop required software for NTDC's functions, with particular focus on the power trading software system and educational material.

5. Training Specialist – 4.0 person-months

12. The specialist will have the following functions:

- (i) Assess the training requirements of all NTDC activities, and develop an integrated training program inclusive of individual modules related to NTDC's business segments, with particular emphasis on the new business segments, such as power trading.
- (ii) Implement the integrated training program for the power training activities for the directly responsible NTDC management and staff. Also undertake specially designed training sessions for the various stakeholders of the power trading activities (generators, distribution companies, Ministry of Water and Power, Ministry of Finance, media, and consumer groups focusing on utility operations).
- (iii) Implement a workshop for NTDC's Board of Directors and senior management covering the specific details of power sector trading, and specifically the legal and accounting/settlement aspects of power trading.
- (iv) Identify external training opportunities that would enhance NTDC's capabilities in meeting the 1 July 2009 deadline for introduction of an open market trading system for the power sector in Pakistan.

D. Reporting Requirements

13. The consultants will prepare and furnish the following reports to the Executing Agency and to the Asian Development Bank.

- (i) inception report within 4 weeks of commencement of assignment;
- (ii) monthly status reports to be forwarded to ADB within 1 week after the end of the month in a format agreed during the inception tripartite meeting, to include any material developed and distributed as part of the assignment;
- (iii) draft final report to be delivered 1 month prior to completion of the assignment; and
- (iv) final report at the completion of the assignment.